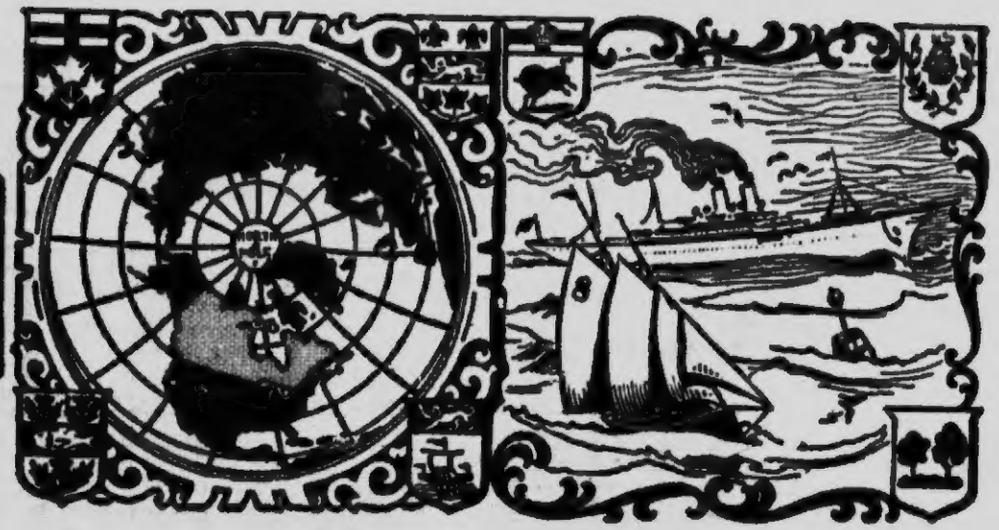
TEACHERS' MANUAL



# HINTS ON HOW TO TEACH

## THE

# NEW CANADIAN GEOGRAPHY



PRICE 50 CENTS

# TEACHERS' MANUAL

## HINTS ON HOW TO TEACH
## THE
## NEW CANADIAN GEOGRAPHY

BY

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W. J. GAGE & CO. LIMITED

TORONTO

# INDEX.

# TEACHERS' MANUAL

TO ACCOMPANY

# THE NEW CANADIAN GEOGRAPHY.

## PART I.—GENERAL NOTES.

### 1.—OUT-OF-DOOR GEOGRAPHY.

THE child learns much geography in his rambles out of doors. He climbs hills, explores waterways, notes the nature of the streams, becomes familiar with the occupations of the people, etc. This "observational geography" furnishes him with the necessary basal ideas to enable him to read a text-book or understand the teacher in the oral work. Since geography as a whole is little more than an aggregate of innumerable "home geographies," it is only by observing and understanding the near that the remote and unseen can be understood. In addition to supplying true and vivid basal ideas, "observational geography" arouses a spirit of inquiry into the science of geography as well as trains the power and habit of geographical observation.

The following topics should be treated as "observational geography," the order of treatment being first the observation of accessible facts, and second the perception of the meaning of the facts observed.

(*a*) **Natural forms of land and water in the neighborhood, as hills, valleys, meadows, ravines, divides, streams, ponds, lakes, etc.**

(*b*) **Artificial features of the locality, as streets, railways, wharves, harbors, parks, roads, bridges, canals, etc.**

(*c*) **Agencies that produce surface changes, as winds, rain, floods, cultivation, thawing and freezing, etc.**

(*d*) **The soil:—Sand, gravel, clay, loam; agents that form soil, as weathering, moving water, vegetation, etc.**

(*e*) **Vegetation:—Germination of seeds; dispersion of seeds; difference of vegetation on uplands, lowlands, and marshes; and upon sandy, clayey, or stony ground.**

(*f*) **Animals:—Habits and characteristics of domestic animals, etc.**

(*g*) **The weather:—Winds, clouds, rainfall, frost, changes of seasons, shifting of the sun, etc.**

(*h*) **Population.—Occupations of the people; centres of population; location of villages, towns, and cities. Food and clothing and occupations connected with these. Building materials and related trades. Local commerce.**

(*i*) **The Moon:—Its appearance and position.**

(*j*) **The Stars:—Position and appearance of the prominent constellations and stars.**

## 2.—ORAL WORK.

Aimless rambling may lead to nothing; not even to a definite observation of where the pupil has been, hence out-of-door walks must be supplemented by oral work in school. Thus it becomes the duty of the teacher to guide and direct the pupil in his observations, and to stimulate him to make these definite and, as far as possible, accurate. The oral lesson as distinct from a text-book recitation arouses the interest of the pupil, awakens curiosity and sharpens wit. It is easy to adapt the matter of such a lesson to the present needs of the class; the important can be emphasized and the pupil incited to master the particular subject of observation in all its details. In this way "observational geography" becomes the key which unlocks all other kinds of geography.

## 3.—GEOGRAPHICAL APPLIANCES.

**(*a*) Pictures—**

If one is too near any object, so that only a portion of it can be observed, he is unable to view this part in its relation to the whole, hence his comprehension of even the part is often erroneous. A view of the whole from some point of vantage greatly assists the understanding not only of the whole but also of the part. One gets a bird's-eye view, and is enabled to take in the whole and properly relate each part. Such a view teaches unconsciously and more graphically than any page of descriptive matter. It tells a plain story which appeals to the mind, excites interest, and leaves a mental picture which verbal description can never equal.

Pictures which are true to nature present to the mind just such scenes as those obtained of a landscape from an elevation. Thus the picture, on page 46, of a Lapland Home shows that the Lapps wear thick coats and warm caps; that they bind up their legs; that they live in a hut made of sods; that the hut is low, rounded, without windows; and that the door swings out.

This picture also reveals other things :—Thus the fact that the hut is made of sods shows that the land produces grass and hence is in a rainy region; the wood for the door and to burn reveals the same thing.

Pupils can also find proof that the air is cold, in the way the hut is built; in the coats, caps, and boots worn; in the mittens on the girl's hands, etc.

Even if the teacher were to ask whether these people read books and newspapers, the pupils might judge after seeing how dark the hut is inside with no windows; how cold the air must be outside; and how lacking in intelligence the faces seem.

After learning that reindeer live in a land that is snowy in winter and marshy, in places, in summer, the pupils can see how well-fitted the broad hoofs of the deer are for travel over the snow or the marshy tundras, and also for scraping away the snow to find moss; how the sods are placed on the hut to shed rain or snow water; how the binding of the boot-legs helps to keep the warmth in and the snow or water out, etc.

This picture shows more about the life of the Lapps than could be told in a long chapter of text. Such pictures should be fully studied, otherwise the text-book will not be used to best advantage.

The general advantages of pictures may be briefly summarized as follows:—

1. They arouse interest in the thing presented, and thus hold the attention upon the subject.

2. They convey correct ideas to the pupils, make vivid the description of the teacher or text, and obviate so much drill and review.

3. Since attention is fixed and the impressions made deep, the facts thus obtained are far more easily remembered.

(*b*) **Maps**—

A better view of a city or of a large tract of co .ry can be obtained by consulting a bird's-eye view than by wandering through the streets of the city or by driving or travelling over the tract of country. Hence, in the study of geography, it is necessary to have views which will enable the eye to behold a great part of the earth's surface at once. These bird's-eye views are maps. Maps should be studied like pictures; the aim being not only to gain knowledge of the chief features of the world, but also to gain *power to read maps*,—that is, power to get thought from maps as from text.

The study of map-questions alone will not develop this needed power. In fact, the best map study can be done without the usual questions.

To show how pupils may be taught to read a map, let them open their geographies at page 54. The teacher says: "What does the map show you about North America?"

At first the answers will be rambling, unconnected, and discursive. Thus the answers may come as follows:— "There are high mountains along the west side. North America is wide at the north and narrow at the south. There are short rivers along the east side. The middle of the continent is a great plain. The northern coast-line is very irregular. There are several large lakes in the great plain," etc., etc.

When the relations of the principal features have been discovered, the work should be made more specific by having the pupils tell more about one of the great natural divisions as the great western highland. They will see that it is very long; that its ranges extend north-west and south-east; that it is highest not far from the southern end; that the middle part is widest; that the highest ranges are on the east and west sides of the highland; that three large rivers flow from the highland to the sea on the west, etc., etc.

For other lessons, the class may be directed to tell what the map shows about the great central plain; or the eastern highland; or the coast line; or the lakes; or the rivers, etc. This work may be oral or written. If written, the answers will form an excellent reading lesson; and by the answers being read aloud, pupils will find out what important parts of the map they have failed to see.

At first little attention need be paid to the names of the features on the map. As soon as the teacher desires the

names to be learned, he may assign a lesson as follows:—"Write a description of the surface of North America, using any of the names you wish, as shown on the *key map* on page 55."

The map studies have been carefully graded, so that pupils are made to rely more and more on their own *seeing*. Thus if the map studies of North America (page 55) be compared with those of Australia (page 199), it will be noticed that in the latter the pupils are made to rely almost entirely on their own power to read the map.

After the pupils have had some practice, it is a good plan to use the map studies given in the geography *after they have made a careful study of the map itself*, but not before.

The maps should be constantly used in locating all places mentioned in the history, literature, and other lessons. This tends to familiarize the pupils still further with maps and aids in forming the habit of locating all important places.

(*c*) **Map Drawing**—

Map drawing is a device for training pupils to read maps. The teacher has two questions to answer. First, what should a pupil see in a map? Second, how should he be led to see?

First. Pupils should know the general shape of a continent; the general direction of the coast lines; the great peninsulas and arms of the sea that affect the climate of large natural regions; important commercial bays and harbors. The details of coast lines that exert little if any influence over the life of the continent should not be studied.

Finely-finished maps, showing hundreds of details which are worse than worthless in the mind, clogging the memory and crowding out the broader and more useful

knowledge of general features, are a waste of time and energy. In a sketch-map only a general accuracy of outline is required, and not more than two or three minutes should be permitted in making it. The following account of actual lessons will suggest a simple plan for teaching map drawing :—

FIRST LESSON.

*Teacher :*—"Turn to the map of North America on page 54. Draw a straight line showing the general direction of the northern coast." "Look closely at the map and then at your line. Can you do better? Try again."

This work was repeated till the pupils could readily draw the line in the proper position.

*Teacher :*—"Draw a line showing the general direction of the east coast."

This line was drawn again and again, till fixed in the mind; then the pupils learned to draw a line for the west coast. No attempt was made to connect the three lines.

*Teacher :*—"Which is the longest line?"

*Pupil :*—"The west line is the longest."

*Teacher :*—"How do the north and east lines for these coasts compare in length?"

*Pupil :*—They are about equal."

*Teacher :*—"Now draw the three lines together, showing the general direction of the coasts." "Compare with the map and try again." "Try once more."

So the work went on till the pupils could readily indicate the general shape of North America.

SECOND LESSON.

*Teacher :*—"Study the map (page 54) and then draw the general shape of North America, using three straight lines." (This was repeated three times to fix the shape.) "Now draw the northern coast line as it appears on the map. Compare with the map and try to improve your drawing. Draw the north coast again." "Practise drawing the east coast till you can draw it from memory." "Draw the north and east coasts together."

THIRD LESSON.

*Teacher* (after a review of lesson 2) :—"Practise drawing the west coast. Study the map each time you draw." "Now draw the entire coast line of the continent. Compare carefully with the map and draw again. Repeat till you can draw it from memory."

In teaching map drawing, do not use construction lines, except such as the pupils *discover* in the relative directions of the coast lines. The value of this work lies in leading pupils to find out the general directions of the coast lines and in fixing these by repetition.

*(d)* **The Moulding-Board, or Sand Table—**

In teaching geography a most useful device is the moulding-board. This is a shallow tray of any convenient dimensions: three feet by four feet and two inches deep is a good size. Fine, white, clean sand will answer, although many prefer moulders' sand, such as is used in iron foundries.

A thin layer of sand is sifted over the part to be used, and the outline of the part to be modelled is marked with a sharp stick and the coast is indicated by brushing away the sand. Thus more sand is sifted on the more elevated parts to indicate the plateaus and highlands. The main mountain chains are now shown by pouring more sand on through a funnel. The rivers are now indicated by means of a sharp-pointed stick.

This mode of modelling a mountain chain is precisely how nature solved the problem of mountain making. There was the great gradual slope before the uplift of the mountain mass began.

The relief-map, modelled in clay, such as is used in kindergartens, or putty, follows in natural order the hastily-constructed sand model. This should depict the topography of the region as faithfully as it is possible with our limited knowledge.

Models of the district surrounding the school serve to impress the contour of the country and the relation of the form of the surface to the flow of water. These, like map-sketchng, arouse interest and aid the imagination;

while the effort to model a hill, or plain, or valley, leads to a very careful examination of these forms.

(*e*) **Globes**—

Every class-room should have one or more globes—one eight inches in diameter is most convenient. This is a suitable scale for the earth, every inch in length on the surface representing 1,000 miles.

Globes are of great use in giving a general view of the earth as a whole: its shape; its divisions into land and water, etc.; as well as in removing the erroneous impressions created by the use of flat maps.

They aid in making clear the astronomical aspect of the subject, as the motions of the earth, the causes of day and night, the causes of the seasons of the year, why the sun comes to the meridian of different places at different times of the day, etc.

When each pupil has a small pine globe, say four inches in diameter, the position of the various lines drawn on an artificial globe, as equator, tropics, polar circles, etc., can be readily taught and indicated by rubber bands held in their places by small tacks.

In teaching the causes and direction of the winds and the currents of the ocean, a *black* globe is invaluable.

(*f*) **Blackboard**—

The teacher should make much use of the blackboard in his oral lessons. Diagrams, cross sections of continents and countries, outline maps, etc., when placed on the blackboard as the lesson is proceeding, add greatly to a clear understanding of the subject-matter; this is more especially the case when colored crayons are used to serve the purpose of tints employed in ordinary maps.

Then every lesson should be summarized on the blackboard as it proceeds. This course of procedure, while

conducive to system, not only serves to emphasize the points made, but also prevents the teacher from becoming discursive.

**(g) Natural History Objects —**

In describing a country, reference has often to be made to rocks, minerals, fossil remains, natural productions, etc. When specimens of these are ready to hand, the lesson becomes much more interesting and is much more likely to arouse the self-activity of the pupils than if these are merely spoken about. Specimens of limestone, granite, gypsum, mica, quartz, marble, iron-ore, mahogany, ebony, oak, red-cedar, etc., add much to the value of the lesson and incite the pupils to a more careful examination of their surroundings to discover similar specimens.

When speaking of such productions as tea, maize, rice, sugar, etc., an added interest is given to the work by showing specimens of the original plants from which these are obtained. In the animal kingdom, pictures of animals must, in general, take the place of the specimen; but even here dried specimens may often be used, such as the cocoon and moth of the silkworm.

The question may arise, "How is the teacher to get these?" Experience proves that a cabinet of specimens will soon be collected by the pupils if the teacher shows that he is desirous of having such and knows how to make a proper use of them when they are brought to him. There are few homes but have some interesting relics which have been consigned to the lumber-room and are now brought out again at the request of some child who has become interested by the efforts of the teacher.

***(h)* Lantern Slides—**

Where there is a lantern in connection with the school, most interesting lessons may be given upon remote parts

of the earth. Lantern slides illustrating all lands, their peoples, their buildings, their natural features, their cities, etc., can now be readily procured.

In this connection, some teachers prefer stereoscopic views, but for class instruction these are not convenient, in addition to being much more expensive than the lantern slides.

### 4.- DEFINITIONS.

No wise teacher requires his pupils to waste their time in memorizing the exact words of a text-book. The teacher of to-day regards the fact that a pupil can express himself freely and clearly upon some point as evidence that that point is understood; whereas the pupil who recites the words of the book like a graphophone may not have grasped a single thought. Do teachers themselves memorize the text? They grasp the meaning and then express it in their own words. Why should pupils be subjected to different treatment?

Of what use are definitions? They are not evidence that the person who repeats them knows. Is it necessary to define spoon before one knows what a spoon is? No one learns the common things of life, as button, fork, cup, chair, water, father, sister, coat, etc., by defining them but by *sensing* them. Why should geography be an exception to this law? Are not hills, and plains, and brooks common?

Pupils should learn to know a hill, a plain, a river, an island, not by defining it, but by studying the thing itself or a good picture of it. The teacher should use various devices to stimulate careful observation. Thus the pupil may be required to *model*, or *draw*, or *describe* it, and the attempt to express in either of these ways will lead to closer inspection and so to the gaining of clearer mental pictures.

Let us illustrate by a *brook*. By one plan the pupil learns the words, "A brook is a small stream of fresh water flowing over the land." By the other he studies the brook itself and discovers that the water is running; it is fresh; the brook winds about; where the brook is swift the bottom is steep; in some places the bottom is rocky; in other places it is muddy; the water moves slowly over the muddy bottom; the brook grows larger as it flows onward; in wide parts of the brook the water moves slowly; in narrow places it moves swiftly; the bottom of the brook slants down hill; the banks are in most places nearly parallel; the land slopes down to the brook on both sides, etc.

Which of these pupils knows more about the brook? Which pupil has gained the greater power in the study? Which has the knowledge better suited to his later life?

But it is claimed that the "book" definition is better worded than the pupil's. What of it? The pupil will never use either in life. The pupil has the *right* to learn to describe objects in his own words in order that he may gain in *power to see and express*.

In the past, the main use of definitions has been to enable the pupil to pass an examination. But what is being tested, power to think or ability to repeat the text? Which shows the greater power, the ability to write the exact words of a book or the ability to express in his own way what has been seen and thought?

## 5.—THE RECITATION OR LESSON

Primary geography should be observational and the instruction oral. There should be no books used.

As the pupils grow in age and power the book should be introduced. When the pupil can understandingly read the text, a book should be put into his hands. Even now,

however, he should not be required to memorize the text, and the lesson should never degenerate into a mere questioning one to discover how well he has prepared the text. The recitation should be mainly a teaching, and not a mere lesson-hearing exercise.

It is the duty of the teacher to show the pupil how to use a text book properly. The skilful questions of the teacher soon convince the pupil that it is not words that are required so much as ideas. In the beginning it is a good plan for the pupils to have their books wide open before them. Thus they will study, learn, and recite at the same time. In a short time the pupils see that mere words may be meaningless, and they learn to look for the underlying ideas while they are reading the text. In this way the proper use of a book is learned. This in itself is a valuable training.

Reviews should be frequent, and so conducted as to find out the real bearing of the pupil to the work in hand. They should not be designed to discover the number of unimportant places that have been memorized; but they should tend to make the pupils more observant, and should cause them to reveal their true selves to the teacher.

For further suggestions for using the New Canadian Geography, the teacher should read the Preface.

# PART II.

# NEW CANADIAN GEOGRAPHY.

### Introduction.

THE introduction states in a general way the subjects treated of in geography, and shows its uses. Those who deal with children are beginning to understand more and more clearly that they are much more interested in the uses of things than in descriptions of them.

The introduction is to be read over and talked about. Each sentence bristles with thought-impelling questions which the teacher who knows about the earth as the home of man can ask. Use the pictures that appear on the page with the text. Thus, the text refers to the Lapps, and here is a picture to show the Lapp boy and man, their home and their reindeer. The polar scene carries the class to the home of the Eskimo. For another part of the text, there stands a Japanese girl with a baby on her back, and with tea leaves and blossoms thrown around the picture. On the right of page 2 are camels resting near tall date palms in the desert, while on the other side is a Nile water boy whose home is on the bank of the great river that flows through the desert. Perhaps the pupils can find at home other pictures bearing on the lesson. *Every pupil who contributes something will be interested.*

### 1.—Form and Size of the Earth, Page 3.

In teaching the form of the earth use the globe constantly, and draw diagrams on the blackboard similar to this :—

SHIPS APPROACHING LAND.

On a thin card cut a hole about as large as the letter O. Place the hole against a globe or ball. How does the part of the globe that can be seen through the hole appear? Enlarge the hole to half an inch in diameter, and see how the surface of the globe appears through it.

Refer to the fact that many persons have sailed round the earth by pursuing a course from east to west or *vice versa*. Speak of Magellan as the first to circumnavigate the earth, and trace the course of his ships from Seville in Spain across the Atlantic, through the Strait bearing his name, across the Southern Pacific past the Ladrones, Philippines, and Moluccas, round the Cape of Good Hope to Spain, in 1519–1522.

Point out that the sun rises earlier to those in the east than to those in the west.

If possible have the pupils place their eyes near the water of an inlet on a calm day, and observe where the shore on the opposite side is visible.

Have pupils hold objects of various shapes in the sunlight, as a cent, a wooden cylinder, a ball, etc., and let them observe which always casts a round shadow, no matter in what position it may be held.

Why do sailors at sea often see the sails of ships when the hulls are invisible? Why are children in Australia or Chili unable to see the North Star?

The curvature of the earth is found to be 8 in. in a mile. The curvature increases with the square of the

distance; thus in 2 miles the curvature is 4 times 8 in.; in 3 miles, 9 times 8 in., etc.

To have a uniform depth of water in a canal, how must the bottom curve?

In teaching the size of the earth, make use of the terms diameter and circumference, showing on the globe what they mean. Have pupils draw circles of various sizes and mark the diameter and circumference of each.

TOPICS: Form of earth, proofs of form, size of earth, diameter, circumference.

### 2.—The Land and the Sea, Page 4.

Pupils should be led to observe that the surface of the earth is composed of land and water.

The teacher should impress the fact that the water rests on the land in hollows formed by it; that the greater part of the earth is a ball of rock; that in most places the rock has crumbled on the surface, forming a cover of soil; that the water on the earth forms a very small part of the whole earth, although it covers so much of the surface.

The teacher should speak of the forces that are now at work crumbling the rock, as follows:—

1. Change of temperature.
2. The *weathering* by the atmosphere.
3. The effects of vegetation.
4. The erosive effects of moving water, moving ice, and wind.
5. The work of animals, as earthworms.

He should also point out the agents that transport soil, as water, ice, wind.

Little is known about the interior of the earth, except that it is very hot. Some wells and mines are over a mile

deep from the surface. In every case it is found that the temperature increases, as the depth becomes greater, at the rate of about 1° Fah. for every 55 feet of descent. The deepest bore-hole in the world is in Upper Silesia, to ascertain the thickness of the coal measures. It is 6,570 feet deep. The average depth of artesian wells sunk for irrigation in the western part of the United States is 210 feet. The petroleum and natural gas wells are between 1,000 and 2,000 feet deep.

The area of the earth's surface is nearly 200,000,000 square miles; the land-area is about 52,000,000 square miles.

TOPICS: Land and water forming the earth, depth of sea, surface of land, sea-bottom.

### 3.—The World Ridge, Page 4.

Make a careful study of the map on page 4. Trace the highlands from Cape Horn to the Cape of Good Hope. Trace the water-parting between the drainage into the Atlantic-Arctic basin and the Pacific-Indian basin. On which side of the world ridge must the great rivers lie? Point out the four great subdivisions of this ridge. State the general direction of each subdivision. What lines on the map guide you in determining the general direction of each part? On which side of the world ridge does the greater part of the land lie?

The study of the *world ridge* presents a simple unit as a basis for the details of relief, drainage, climate, products, people, commerce, etc. All the facts as soon as learned will take their places in this world unit and will fit together like stones in a building. The names on the key, page 5, should be used. This map should be studied persistently until the continuity of the world's primary highland is clearly understood.

TOPICS: Land and water, world ridge or primary highland, slopes from world ridge, where the great river basins must lie.

### 4.—Continents or Grand Divisions, Page 5.

Have the pupils discover on the map of the world ridge that arms of the sea wholly or nearly separate the continents from one another; that four of the continents spread around four great highlands of the world ridge; that Australia, an island so large that it is called a continent, does not contain any part of the world ridge.

Point out the position of London in England, and have the pupils note that it is at the centre of the land masses of the earth. This land mass is often spoken of as the *Land Hemisphere*. The *Water Hemisphere* has New Zealand for its centre.

TOPICS: The continents, their position on the earth and with reference to one another.

### 5.—The Oceans, Page 6.

Use a globe. Have pupils grasp the idea of a great body of water spreading round the Antartic region, from which the other parts of the sea extend like arms between the continents. This gives unity to the water area, and at the same time relates it to the world ridge.

Speak of the saltness of the water. In 100 lbs. of sea-water there are 3½ lbs. of salt in solution. The saltness is not uniform. In enclosed basins subject to excessive evaporation, like the Red Sea and the Persian Gulf, the water is saltier than in the open sea. On the other hand a sea like the Baltic with light evaporation and a large supply of fresh water is considerably fresher than the ocean.

Refer to the temperature of the oceans. The great

body of water is always icy-cold. The surface-water has a temperature which, in general, is warmer in winter and cooler in summer than the adjoining land.

Speak of the movements of the water. Point out that the waters are never at rest, and refer to the movements as (1) surface movements, as waves; (2) wind or drift currents, as the equatorial currents; and (3) the tides.

Speak of the origin of the names:—

Atlantic, because it washes the foot of the Atlas mountains; Pacific, because when Magellan crossed it, the weather was exceptionally fine (it is often visited by terrible storms); Indian, because it borders on India; Arctic, because it lies at the north; and Antarctic, because it is opposite to the north.

TOPICS: The oceans, their position, the nature of the water, the movements of the water.

### 6.—Shore-Forms, Page 7.

Study the pictures on page 7, to note the difference in the shore-forms caused by the tides.

Point out that there are two great classes of islands, *Continental Islands* and *Oceanic Islands*. Continental islands are those like Great Britain, which at one time were united to the continent near which they are situated. These possess the same flora and fauna as the main land, and are formed by the gradual sinking of the continent.

Oceanic islands are (1) those which have been formed in deep seas by volcanoes, as St. Helena, or (2) those which are of coral formation, and are found only in warm seas, where the water is clear, such as the Laccadive Islands, (3) those which are the tops of mountains, as many of the West Indies.

Explain that a *sound* gets its name from the fact that it is so narrow that it can be swum across. The name

had originally nothing to do with the shallowness of the water. See Skeats' Etymological Dictionary.

Do not attempt to make a distinction between bays and gulfs. Compare the Bay of Biscay and the Gulf of Guinea, Hudson Bay and the Persian Gulf, etc.

TOPICS: The tides, islands, peninsulas, straits, sounds, channels, bays and gulfs.

### 7.—Mountains, Page 9.

Direct attention to the pictures of mountain folds on pages 60 and 161. These illustrate how great mountain systems are thrown up. Explain that the fold may be due to the outer crust accommodating itself to the continuously shrinking interior. As soon as the mountain appears, erosive forces act upon it and shape it, forming the peaks and valleys characteristic of mountains. The denuding forces of frost and snow, of moving ice, and running water act upon the softer parts, leaving the more indurated portions as mountain masses.

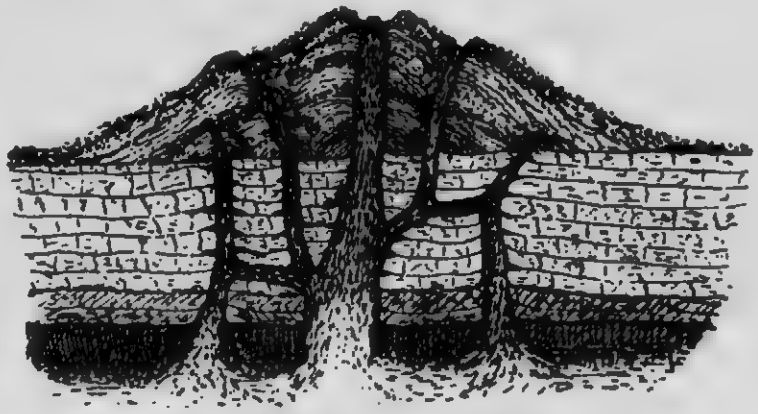
The folding of the earth's crust is not the only way in which mountains are formed. There are ranges, such as the Sierra Nevada and the Cascade Mountains of North America, which were formed by the lava pouring from volcanoes.

Emphasize the fact that earthquakes are characteristic not alone of volcanic regions, but also of regions where mountains, as the coast range of California and the Alps, are still growing, and their rock layers are slipping or faulting. By referring to maps on pages 54, 68, and 69, show how mountains are represented.

TOPICS: How mountains are formed, origin of peaks, earthquakes, range, system, avalanche.

### 8.—Volcanoes, Page 9.

Direct attention to the pictures of Vesuvius and the Lava Field, page 9, and place a diagram similar to this upon the blackboard.



IDEAL SECTION OF VOLCANO.

Explain that the volcano is the opening in the earth's crust from which are emitted pumice and molten rock which form the *volcanic mountain*. The mountain is the result of the volcano, not the cause of it. There are volcanoes where there are no mountains, the crater being at most a few hundred feet above the plain. Then there are volcanoes in the bed of the ocean.

Do not speak of a volcano as a burning mountain. There is no burning. What is called flame is merely the reflection of the glowing mass of molten rock upon the clouds of condensing steam which always hover about the crater of an active volcano. The so-called ashes are finely pulverized mineral matter formed by the steam forcing its way through the lava. The smoke consists of thick clouds formed by condensing steam.

Explain the effects of volcanic eruptions to be earthquakes, an addition of rock material to the surface of the

ground, formation of mountains, the damming of streams and forming of lakes; immense waves are sometimes produced which sweep over neighboring lands.

Point out that the cause of volcanoes is the presence of steam. In a way the eruption may be compared to the bursting of a boiler. The superheated steam tends to escape, and an eruption occurs.

TOPICS: Volcano, crater, lava, eruption, etc.

### 9.—Valleys, Page 10.

Contrast hills and valleys. On a hill, the sides meet at the top; in a valley, they meet at the bottom; a hill rises above the land near it; a valley is lower than the land at its sides. Water runs *from* hills *into* valleys.

Have hills and valleys modelled and drawn. Explain that valleys are formed in various ways:—

1. The folding of strata that form mountains must result in forming valleys. Illustrate on blackboard. See also picture on page 60.

2. Valleys are the result of stream-cutting the waste from hills and mountains. Broad, fertile valleys are thus carved in the land.

Show that a river valley results from the combined action of stream erosion which deepens the valley, weathering which broadens it, and the transportation of the sediment which extends the plain.

Direct attention to the picture of glaciers on pages 18 and 143, and explain how these rivers of ice are grinding down the mountains and hollowing out valleys. Thus when the northern part of this continent was covered with a glacier, many basins were scooped out which are now occupied by lakes.

Notice the canyon of the Colorado, page 58; observe that the banks are steep because there is not enough rain to wear them very far back while the river gouged its bed.

The appearance of mountains and plains indicates their age. When it is known that one characteristic of young plains is evenness; that the valleys worn by streams in such plains are narrow and are mostly near the main streams; that as a whole the surface is little broken and presents immense level areas over which railroads and wagon roads can easily be built, etc.,—then the word *young* has depth of meaning and calls the understanding to aid the memory of the surface, the products, commerce, and other geographic elements. Likewise, when the word *old* helps to picture the ruggedness of the plateau in West Virginia; helps to bring to mind a surface cut by deep and wide valleys, where travel is difficult except along the river valleys; where there is little level land, except in the valleys; yet where the eroded plateau reveals layers rich in coal, iron, oil, etc.,—then the word *old* is brimful of meaning, and like the word *young* calls the understanding to aid the memory of geographic facts or relations.

The sharp peaks and ridges of the Rocky Mountains and the rounded domes and ridges of the Appalachians show that the former are comparatively young, and that the latter owe their form largely to ages of weathering.

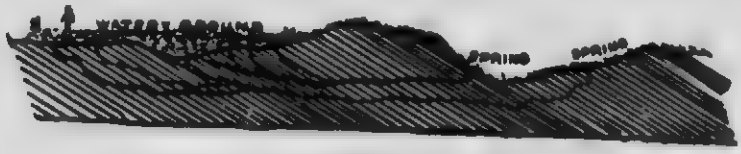
When streams become sluggish, from having cut their channels almost to a *bare level*, and the valleys have become very broad; and when the whole surface has been worn down to gentle slopes, then the region is old.

TOPICS: Valleys, how formed, age of valleys, gorges, glaciers, canyons.

### 10.—Springs and Streams, Page 10.

Refer to the pictures on pages 11 and 12 for the sources of streams, and to page 16 for the effect of rain upon them.

Visit springs in the neighborhood. Note their situation and their effect upon the surrounding ground.



SPRINGS.

Speak of rain and snow and what becomes of the water. Why does melting snow cause floods? Why do heavy rains in summer often cause no floods?

Speak of the effects of forests in preventing floods by retaining water in the soil and preventing it running off the land too freely. Show how frozen ground causes the water to run off and thus cause floods.

Refer to the work of streams as seen after a rain storm. Point out how deltas are formed when the river reaches the quiet waters of a lake or sea. See picture, page 13. Give examples of deltas as at the mouths of the Mississippi, Nile, Ganges, Yellow River of China, etc.

### 11.—Rivers and River Systems, Page 11.

Illustrate every part of this lesson, if possible, by reference to the streams near the school. A tiny brook will serve to illustrate head or source, course, banks, channel, and mouth. If it has one or more branches it will give the idea of tributary and system.

Use many pictures. Thus the glacier, page 18, shows the source of a small stream; the Alaska delta, page 13, is at the mouth of the Yahtse river; the picture at the

middle of page 12 shows several river systems; on pages 68 and 69 the St. Lawrence system can be readily traced.

Explain whence the river gets its waters. Show that the water of the sea is evaporated, becomes clouds, falls on the land as rain or snow, and runs back to the sea in streams, to be once more evaporated.

Study the picture of Niagara Falls, page 12.

TOPICS: River, source, mouth, tributary, river system, etc.

### 12.—River Basins and Divides, Page 12.

Study the picture at the middle of page 12 to find the lines which separate one river system from another. On page 54 trace the basin of the Mississippi, of the St. Lawrence; and on page 68 that of the Mackenzie. On page 134 trace the basin of the Amazon.

Lay stress on the divide, or water-parting. Impress the fact that a divide may be found on land that has no perceptible slope, as well as on the highest mountain ridges. Show this by studying the basins of the Amazon and the Parana, as seen on page 134.

TOPIC: River basin, divide or water-parting.

### 13.—Plains and Deltas, Page 12.

Flood plains and deltas support more than one half the human race.

Observe streams after heavy rains. Notice the muddy water. Observe where the coarser materials are deposited, and how the finer silt is carried along.

Study pictures of flood plains, pages 13 and 171. Read descriptions of the flood plain of the Ganges, page 184; the Nile, page 194; the Orinoco, page 140. Try to show

a flood plain in the neighborhood of the school. There may be some small brook which floods a part of a meadow in time of heavy rain.

DELTAS.—A delta is the lower end of a flood plain, advancing into the sea or standing water. Explain that all rivers do not form deltas, for the movement of the sea water at the mouth of the river may prevent the formation of a delta. The waste material may be swept away and deposited over the bottom, or it may be carried along the shore, and with other material, borne by waves and currents, may be formed into bars parallel to the shore. See page 65.

Many people live on delta plains. About one-fifth of the human race is found on the vast delta plain of the Yellow and Yangtse rivers. See page 183. The Ganges delta swarms with people, while the deltas of the Nile, the Po, the Rhine, and other rivers teem with life. Find these on the proper maps.

Notice that while the land is wasting at one place it is building up a plain elsewhere. Show why flood plains and deltas should be so fertile.

TOPICS: Flood plains, silt, fertility of flood plains, deltas, plains, plateaus.

### 14.—The Waste of the Land, Page 14

If possible have the pupils observe how rocks crumble when exposed to the weather. Visit some railroad cutting. Notice how stones in buildings and monuments in graveyards in a short time lose their polish.

Explain that rocks decay like wood, only more slowly. Since the change in *weather*, from hot to cold, from dry to wet, or *vice versa*, makes all rocks decay, we say that rocks *weather*, i.e., they decay as a result of changing of weather. The process of decay is known as *weathering*.

The terms *rock-waste* or *land-waste* mean merely the loose matter that comes from rocks as they decay or are broken up in any way, as by frost or by being rolled against one another in the beds of streams. This rock matter is called *waste*, whether lying in heaps at the foot of cliffs (talus), blown by wind (sand and dust), borne away by streams (gravel, sand and silt), or dragged by ice (glacial drift), or spread by water over flood plains (alluvium), or on the sea-bottom (marine sediments). Rock-waste may be boulders, pebbles, gravel, sand, clay or even fine dust. Rock-waste is often called *soil*, but this word is perhaps better applied to fine rock-waste mixed with decayed or decaying leaves, twigs, grass, etc., or with any animal matter, or with all these.

Study the pictures on pages 14 and 19.

The teacher should give a series of lessons on the agents which are at work breaking down rocks and forming soil.

These may be spoken of as follows :—

1. Change of temperature.
2. Chemical action of air and water.
3. Plants acting both chemically and mechanically.
4. Animals like earthworms that burrow in the ground.
5. The erosion of rain and running water.
6. Ice as glaciers.
7. Waves.
8. Wind.

Speak also of the transportation of the rock-waste by such agents as running water, waves, glaciers, wind.

TOPICS : Weathering, decay of rocks, rock-waste, where rocks weather quickly.

### 15.—Land-Waste on its Way to the Sea, Page 15.

Explain the two aspects of moving rock-waste as follows:—

1. Note the *rapid* moving of surface rock-waste on steep slopes, either by water or by mere sliding down, as shown in the pictures, page 14; by streams as seen after a rain storm; by ice, page 19; by winds, page 17.

2. Note the very slow creeping of the entire sheet of rock-waste on a slope, even though it is a very gradual one. Thus, suppose a layer of rock-waste, fine and coarse, covers a gentle slope to the depth of ten feet. As the rain filters through this waste, it slightly moves the particles and even large boulders, by washing or dissolving away their support. As the waste settles to rest, it tends of course to roll down hill, however gentle the slope may be and however deeply buried the waste may be. When fine rock-waste is wet, its particles may be held apart by the rain water; but as the water dries out, the particles settle together, always tending down the slope. Water freezing in the ground loosens the rock-waste and helps it to move downward. As the waste weathers finer and finer, it is more easily moved by the wetting, the drying and the frosting.

This slow creeping is often the cause of the caving-in or falling of sand and gravel banks. Sometimes the speed is quickened into landslides, especially on mountains.

Some slopes, as mountain sides, are so steep that the waste is carried away as fast as it forms, leaving bare rocky ledges. Other flat surfaces have such gentle slopes that the waste has time to weather very fine to a great depth.

The term *alluvium* refers to soil, mud, sand, or any other deposit made by water. The name of *alluvial fan* is given to any fan-shaped body of alluvium. Such fans

form along the base of mountains, and often spread out into valleys. Almost the entire valley of California is bordered by broad and fertile alluvial fans, and the valley bottom is covered with soil washed from them. The best orange lands of southern California are on alluvial fans. The Ganges river has been pushed far southward by the very flat alluvial fans stretching out from the southern base of the Himalayas.

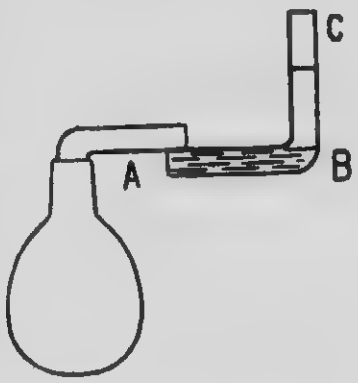
TOPICS: Creeping of rock-waste, waste on steep slopes, alluvial fans.

**16.—Winds and Rainfall, Page 15.**

Hold a stick with some bits of paper cut into ribbon-like strips tied to one end, in the doorway opening into a cold room from a warm hall, near the top of the doorway, then near the bottom. Notice how the paper strips move, and infer the direction of the draught.

When a fire is placed in the neck of a fire balloon the balloon expands and becomes filled with heated air. As a result, the outer cold r air presses beneath the balloon and lifts it upwards.

These air movements are caused by difference of temperature. In each case the cold air moves towards the warm air.




Heat a glass vessel filled with air slightly; observe the movement of the colored water from A towards C.

Thus air, when cool, occupies less space than the same air when heated. Hence heated air is lighter than an equal volume of cold air.

Place a cork in the bottom of a glass vessel; pour in water. The cork rises. Heated air rises for the same

reason as the cork. Blow soap bubbles. They rise because they are full of warm breath.

Hold a thermometer in front of the draught of a hot stove; then over the stove. In which place is the air the cooler? In which direction is the cool air moving?

At a bonfire observe the direction of the draught.

All these experiments show that *the cool air is moving towards the warm air.*

Pupils are now in a position to understand the *Trade Winds*, for they are simply currents flowing from the warm belts into the hot belt.

Show the effect of the rotation of the earth in causing these otherwise north and south winds to be deflected to the west.

Explain the name trade-wind. It means always blowing in the same track or tread. (See Skeats' Etymological Dictionary.)

Explain that the heated air that rises at the heat-equator flows off as an upper current towards the poles, and thus compensates for the flow of air from the north and the south towards the equator. The outflowing upper current descends to the surface of the earth near the tropics, and continues its course to the north and the south, but owing to the rotation of the earth it is deflected to the east, and in the northern hemisphere becomes a south-west wind, and in the southern hemisphere a north-west wind. These are the *anti-trades* or *return-trades*.

Where the heated air rises between the north and south branches of the system of trade winds is a region of calms called the *Doldrums*. They are from 200 to 300 miles wide.

Land and sea breezes can also be readily explained. It is only necessary to keep in mind the fact that water becomes heated much more slowly than land, but retains its heat much longer. Hence, in the day time, the land

is warmer than the water, and the air over the land will be warmer than the air over the water, hence there is a sea-breeze.

At night the water is warmer than the land, and the air over the water is warmer than that over the land, hence there is a land-breeze.

It may be necessary to remind teachers that the rainfall of the north temperate zone is not caused by warm moist winds from the south-west meeting cold polar winds. The United States map on page 15 presents the subject better than any text can. The winds of this zone blow mainly from a westerly direction. In this wide zone there are, of course, some places where the air is lighter than in others. The heavier air flows toward the lighter, not in straight lines, but in whirls or eddies. Each great area of low pressure, or light air, becomes the centre of an eddy; yet this centre, as well as the entire eddy, moves eastward.

From all sides the winds eddy in,—some from dry regions and some from water surfaces; some from cold areas, some from warm. The large map on page 15 shows such a storm centre over the middle of the United States. The arrows show that the winds move from all directions spirally towards the centre—some from the dry basin region of the western highland, some from the Gulf of Mexico, some from the Atlantic, and some from Canada. The area for many thousand square miles round the storm centre is receiving rainfall, and the cloudy area reaches out still farther.

This wind eddy, with its rain and clouds, moves eastward about as fast as an express train, giving out rain as it goes. There may be several such eddies following one another across the continents and oceans, as shown on the circular map on page 15.

*Rainfall.* The most important facts under *rainfall* are these: When moist air is *cooled enough* it yields rainfall (rain or snow); winds that are growing warmer can absorb more vapor and do not yield rainfall; winds that are moving into cooler latitudes or cooler heights yield rainfall when they are cooled beyond their point of saturation; the trade winds move toward the heat equator, and as a rule become warmer as they go, but where they are lifted over highlands (that is, to cooler heights), they yield rain on the *windward slopes;* in the belt of weak winds or calms near the heat equator, the air is being lifted to cooler height, and therefore gives up great quantities of moisture; the rains of the westerly winds come chiefly in the eddying storms, and are heaviest on western slopes of highlands and on western coasts, though these eddies may yield heavy rainfall on such inland regions as the prairies, if the eddying winds blow from over arms of the sea, especially southward from them, as the Gulf of Mexico.

TOPICS: Cause of winds, trade winds, calms, return trade winds, land and sea breezes, rain, equatorial rain belt, rains of westerly winds

### 17.—Work of the Winds, Page 17.

Call attention to dust storms that occur in the neighborhood. These remove soil, when the ground is not covered with grass, and drift it into sheltered places.

Study the pictures of the shore and desert dunes, page 17. Some Sahara dunes are 600 feet high. Shore dunes are common along all sandy shores when the prevailing winds blow inland.

Speak of the work of winds in causing waves which break down rocks and grind the fragments into minute particles.

Refer to the ventilation of the school room, to illustrate the effect of the wind in mixing air.

Review the last lesson on rain, to show the effect of wind in causing rain.

To illustrate the effect of winds in modifying climate, point out that winds which come from a hot, dry region are hot and dry; those that come from a cold region are cold, etc.

To show how seeds are scattered by the wind, speak of seeds that have wings, as those of the maple, ash, elm, and tulip tree; and seeds that have parachutes, as those of the dandelion and thistle.

To illustrate the use of winds, refer to the windmills of the neighborhood and to the many sail boats and sailing vessels which are driven by the wind.

Explain how winds cause water to drift before it until there may be a permanent current set up, to show the effect of winds in causing currents.

TOPICS: Winds transport soil, cause waves, mix the air, affect rain and climate, scatter seeds drive windmills, propel vessels, and cause currents.

### 18.—Snow and Ice, Page 18.

Have the pictures of glaciers on pages 18 and 143 studied.

Speak of the fact that the snow that falls on high and steep slopes is either blown into ravines by the wind or falls into them by avalanches, and so accumulates year after year and becomes packed into the consistency of ice, which slowly glides down the side of the mountain like a stream of water. This is the *Alpine* or *valley glacier*.

Refer to the rock fragments that fall from the confining banks and from the rock-waste, or moraine, as seen on page 19.

If possible show rocks scratched by glaciers in the neighborhood.

The rounded hill, shown on page 18, is a typical glacial hill or *drumlin*. It is a heap of rock-waste accumulated by the ancient ice-sheets of glacial times. Drumlins are common in the eastern part of Canada.

The Greenland ice-sheet was engraved from one of Nordenskjöld's photographs, and shows the exact condition of the interior of Greenland to-day. The entire island of Greenland is covered with ice and snow that have been accumulating during long periods of time. The ice is slowly flowing outwards to the ocean, and at times immense fragments break from the ice front and float away as icebergs. This is called a *continental glacier*. It was a continental glacier that, flowing from the centre of Labrador ages ago, covered Eastern Canada and the northern part of the United States.

Speak also of the erosive and transporting effects of glaciers. The ice, aided by fragments of rock which it pushes along the sides and bottom of the ravine, planes, gouges, and cuts away the rock over which it moves.

TOPICS: Glaciers, rock-waste, moraines, drumlins, icebergs.

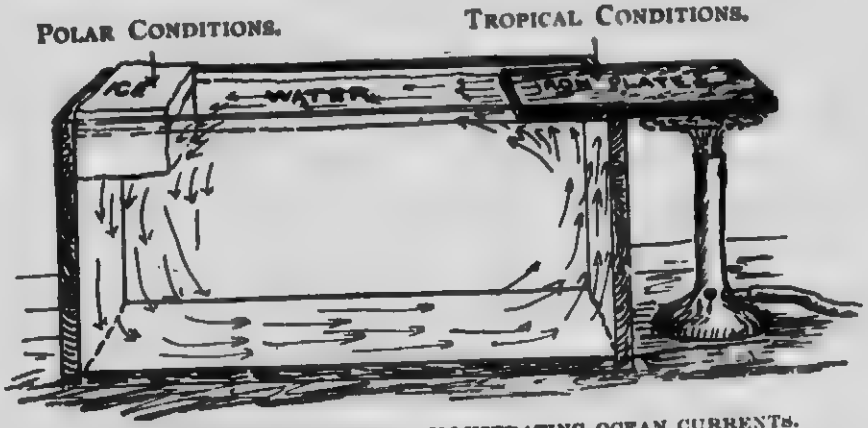
### 19.—Ocean Currents, Page 19.

Compare the direction of ocean currents, as shown on the chart, page 19, with the direction of the winds, as shown in the plan on page 15.

It will be observed that the great oceanic eddies follow the course of the prevailing winds. Hence it is supposed that the drifts have, in time, become currents.

Heat a closed vessel filled with water and fitted with a small projecting tube passing through the cork into the water.

Notice the expansion of the water due to the heat.




DR. CARPENTER'S EXPERIMENT ILLUSTRATING OCEAN CURRENTS.

Dr. Carpenter's experiment consists of a large glass vessel filled with water. Ice is placed at one end to chill the water, and at the opposite end a hot plate warms the surface water. Circulation at once sets in.

Where are the warm areas of water on the earth?

Where are the chilled waters on the earth?

Explain that the winds and the unequal temperature of the waters in equatorial and polar regions are accounted the main causes of the general circulation of the ocean waters; the winds and the rotation of the earth on its axis are the great factors that cause currents and determine their direction. The heavy and cold waters of the polar regions move, as an undercurrent, towards the lighter and warm waters of the tropic. The warm water flows over, as a surface movement, towards the polar regions. Thus a constant circulation is taking place. This general movement is modified by the winds.

The flow of the equatorial current is scarcely more than a drift, its rate being from 10 to 15 miles per day. The gulf stream is the most important of warm currents. Its sources are the Caribbean Sea and the Gulf of Mexico.

Its velocity varies from 3½ to 5½ miles an hour. From Florida to Cape Hatteras, it extends to the bottom of the ocean.

This current warms and fills the winds that blow over it with moisture, and so makes the climate of western Europe much warmer and cloudier than it would otherwise be.

Trace the Kuro Siwo (koo'ro she'vo) from the Malaysian Islands, along the coast of Asia, past the Japan Islands, and show its resemblance to the Gulf Stream.

Emphasize the effect of oceanic circulation in equalizing the temperature of the earth.

TOPICS: Cause of ocean currents, ocean eddies, Gulf Stream, Kuro Siwo, Polar currents.

### 20.—The Moon and the Tides, Page 20.

Pupils in inland parts should study the pictures on page 7.

The following is Dr. Emerson E. White's explanation of the tides:—


Let E equal the attraction of the earth, and M equal the attraction of the moon at B, and M′ the attraction of the moon at A and C.

Since the distance OB is less than OA or OC, $M > M'$. Hence $E - M < E - M'$, and hence the water at B *is lighter* than at A or C., i.e., has less specific gravity, and will be lifted by the surrounding heavier water.

Again, let E equal the attraction of the earth, and M equal the attraction of the moon at B′, and M′ equal the attraction of the moon at A′ or C′.

Since the distance OB′ is greater than OA′ or OC′, $M < M'$. Hence $E + M < E + M'$, and hence the water at B′ is lighter or has less specific gravity than at A′ or C′, and is lifted by the surrounding heavier water. Since OB is less than OB′, $M > M'$, and hence the tide at B is higher than at B′.

TOPICS: Tides; causes of tides, spring tides, neap tides, flood tide, ebb tide.

### 21.—The Motions of the Earth, Page 21.

*Annual Motion.* Have pupils observe a star in the west just after the sun has set. Notice the same star next evening, and the next, etc. In a short time it will be found to set *before* the sun. Continue such observations until the pupils are convinced that the sun appears to move from the west to the east among the stars.

Let a pupil stand near the centre of a room and another carry a globe round him. The progress of the globe may be marked off upon the walls and objects of the room. Now let the pupil with the globe remain stationary, and the first pupil move around it. The globe will appear to move round the room just as before.

If the earth be represented by the first pupil, the sun by the globe, and the stars by the objects and walls of the room, it will be easy to explain the apparent motion of the sun in the heavens by showing that it is caused by the real motion of the earth around the sun.

Considering the fact that the sun is so much larger than the earth, we conclude that it is the earth that revolves about the sun.

*Diurnal Motion.* Proofs of:

1. The top of a tower travels more quickly than its base. A stone, therefore, let fall from a very high tower or shaft reaches the ground slightly east of the base. This deviation is found to be 1 inch for a fall of 520 feet.

2. If a cannon be fired due north or south over a range of six miles, the time occupied by the shot is about thirty seconds. If the shot were travelling directly south in the northern hemisphere, the object aimed at would be travelling eastward at a greater speed than the firing station, and the shot would fall to the west of the object aimed at by about 45 feet.

3. It is inconceivable that the sun and all the stars could move round the earth in 24 hours.

4. Foucault's experiment renders the rotation of the earth visible.

In showing the effects of the rotation of the earth, darken the room and place a ball before a lighted candle. It will be easy to observe that one-half is illuminated and one-half is in darkness. Then slowly rotate the ball, and the pupils will see that a spot in the dark part comes into the light, and after passing through the lighted half goes into the dark part again.

The application to the earth is simple. The sun appears to rise every morning in the east, pass across the heavens, and then set in the west. The real movement is this: the earth by its rotation causes the sun to appear to rise and to cross the heavens, and then to set in the west, thus causing the regular recurrence of day and night.

TOPICS: Motions of earth, proofs of annual motion, orbit, diurnal motion, proofs of diurnal motion; effects of diurnal motion.

### 22.—Results of the Earth's Annual Motion, Page 22.

Have the seasons described and the main characteristics of each given. Refer to their regular succession. Perform the experiments given in the text, and have the conclusions from these drawn.

In addition to performing the experiments given in the geography, try the effect of carrying the globe round the object without rotating it. It will be observed that there would be no regular warming of the entire earth, and hence the regular succession of the seasons would be impossible.

Add a fourth cause, viz., the rotation of the earth upon its axis.

TOPICS: The seasons, variation in length of day and night, causes of seasons.

### 23.—The Zones and Climate, Page 23.

Place a map of the zones upon the blackboard. Question pupils on it until the position of each zone and its boundaries are known.

Have pupils draw a map of the zones.

Perform the same experiments as in lesson 22. Find the part of the earth's orbit in which the northern end of the axis leans farthest towards the sun. On which part of the globe do the vertical rays then fall? *Rotate* the globe, holding the axis always in one position. As the globe rotates, notice where the vertical rays would fall on an entire day.

Mark the line where these rays would fall. Call this line a *tropic*, meaning a *turning place*, for here the sun *seems* to turn back towards the equator. In ancient times, when the sun was over this tropic, it seemed to move through a group of stars called *Cancer*, meaning a *crab*; hence we call this line the *tropic of Cancer*.

Move the globe till it reaches the part of its orbit in which the northern end of its axis leans farthest from the sun. Where do the vertical rays now fall? Rotate the globe and find the line on which the vertical rays fall during an entire day. This line is another tropic. It is called the *tropic of Capricorn*. *Capricorn*, meaning *goat*, is the name of a group of stars through which the sun formerly seemed to pass, when over this tropic.

Study carefully figures 2 and 3, page 22, and see what is meant by vertical rays falling on the tropics. Notice that the tropics extend east-and-west, and that when the sun is over the tropic of Cancer it rises and sets far north of the east-and-west line on which we live. Thus the summer sun in the morning and evening shines into windows on the north side of a schoolhouse.

Use figures 1, 2 and 3 to illustrate how far north and south the sunlight reaches on the earth when the sun is over the equator and over each tropic. Use the globe to discover the same facts. Pupils will readily discover that the polar circles are just as far from the poles as the tropics are from the equator.

Explain what is meant by climate, i.e., it means the average weather of a place or region, not the weather of any particular day.

The climate depends chiefly on three things: temperature, moisture, and winds.

A place distant from the ocean has a *Continental* climate; a place in the ocean or along its shores has a *maritime* or *insular* climate.

The chief difference between these is that a maritime climate is much more equable than a continental one. In places distant from the equator in the interior of continents, the climate is subject to great extremes of heat and cold. To illustrate why this should be, set a pan of water,

a pan of sand, a pan of fine soil and a smooth rock in a sunny window, and find out which becomes warmest in the sunshine.

In explaining the laws of climate, give examples and illustrations of each law.

Tabulate the results as follows :—

1. *General Law :-*

The climate of a place depends upon its distance from the equator.

2. Modifications of this law :—

(*a*) The climate of a region is affected by its elevation above the sea-level.

(1) The air is warmed by contact with the land.

(2) The higher we ascend the cooler the air becomes.

(*b*) The sea and ocean currents affect climate.

(1) The sea equalizes summer and winter temperatures.

(2) If the current is cold, the winds from it will be cold ; if warm, the winds will be warm and the climate modified accordingly.

(3) Countries near the sea have an *insular* climate.

Countries far inland have a *continental* climate.

(*c*) The slope of the land affects climate.

(*d*) Prevailing winds affect climate.

(1) The south-west winds from the Atlantic raise the temperature of Western Europe.

(2) The dry, cold winds from the east make the British Islands cold.

(*e*) Rainfall affects climate.

(1) Rainfall is greater near the sea.

(2) Rainfall is greater upon the windward side of mountains.

TOPICS: Zones, the five zones, tropics, polar circles; climate, general law, modifications of general law.

### 24.—Belts of Heat, Page 25.

Have the diagram on page 25 studied until the pupils see clearly why slanting rays have less heating effect than vertical ones.

Place a drain tile parallel to the sun's rays on a horizontal sheet of paper at different times of the day, and draw the inside shadow line; do this at noon during different seasons of the year. The scattering of heat and light due to the slanting of the rays will be evident.

Have pupils consult the map on page 24, and state where the boundary lines of the various belts of heat pass through the continents.

A diagram similar to that of the Heat Belts, on page 23, may be placed on the blackboard as the lesson proceeds.

Have the pupils sketch a similar map of the continents, and mark in the belts as the teacher indicates.

When the boundaries of the belts are known, employ shading to indicate their extent.

TOPICS: The sun, air, how warmed, hot belt, warm belts, cool belts, cold belts.

### 25.—Latitude and Longitude, Page 25.

In order to read maps, pupils must know how to read distances in degrees and to locate by means of parallels and meridians.

The various diagrams on page 26 make this lesson clear. All that is needed in addition is exercise after exercise in reading latitude and longitude on the political maps in the geography. Give such exercises as this: Direct the pupils to turn to the maps on pages 147, 153, 157, and to tell in nearest degrees the latitude and longitude of London, Edinburgh, Dublin and Liverpool. Of course pupils are not expected to remember the answers, but simply to learn how to find the locations. Likewise, turn to page 57, and find the latitude and longitude of New Orleans, Philadelphia, San Francisco, Sitka, Chicago, Ottawa, Bering strait, magnetic pole, St. John's, Mexico (city), Havana; on page 137 locate by latitude and longitude (nearest degrees) Rio Janeiro, Quito, Cape Horn, Panama; on page 193, locate Monrovia, Boma, Cape Town and Cairo.

When solving the problems regarding the conversion of degrees of longitude into time, and *vice versa*, reason as follows:—

360° correspond to 24 hrs.
∴ 1° " " 4 min.
1′ " " 4 sec.
1″ " " $\frac{1}{15}$ sec.

Find the difference in time between two places—one 70° W. L. and the other 89° 45′ 15″ W. L.

The difference in longitude is 19° 45′ 30″.

The difference in time is $19 \times 4$ min. $+ 45 \times 4$ sec. $+ 30 \times \frac{1}{15}$ sec. or 1 hr. 19 min. 2 sec.

Again, 24 hrs. correspond to 360°
∴ 1 hr. " " 15°
1 min. " " $\frac{1}{4}$°
1 sec. " " $\frac{1}{4}$′

The difference in time between two places is 26 min. 48 sec. Find the difference in their longitudes.

Difference in longitudes is $26 \times \frac{1}{4}^\circ + 48 \times \frac{1}{4}'$, or $6^\circ\ 42'$.

TOPICS: Latitude, longitude, equator, meridian, first meridian.

### 26.—Phases of the Moon, Page 27.

Explain that the moon is the nearest heavenly body to the earth; that it is about 240,000 miles distant from it; that it is a sphere 2,160 miles in diameter.

Have pupils observe the moon from evening to evening, beginning with new moon. Note the shape, the direction of the horns, or cusps, the relative length nd width of the visible part.

Draw what has been observed and verify the correctness of the drawing by further observations. Continue thus until after full moon. In the waning days of the moon, it will be visible in the morning. Draw it as it now appears. Do the cusps point in the same direction? Which way does the moon move round the earth? How many days does it take to go round the earth?

TOPICS: The moon, new moon, full moon, the quarters.

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## PLANTS.

### Introduction, Page 28.

The object of these questions is to direct attention to the relation of plants to water, soil, heat, etc. This lesson is not to be studied. The lesson will be a success if pupils become more observant of the plants of the neighborhood. The questions will also induce a careful reading of the next five lessons.

### 1.—Soil, Water and Heat, Page 29.

This lesson embodies some of the conclusions derived from a consideration of the questions in the introductory lesson on plants.

Whence do we get our oranges? Why cannot we grow them ourselves? From a consideration of such questions pupils will see that some plants require a hot season to mature.

Explain how plants are reproduced. Speak of seeds, cuttings, layering, grafting, budding, etc.

Point out how seeds are distributed by winds, ocean currents, rivers, feathers of birds, food of birds, fur of animals, and man.

Classify regions as regards vegetation into barren, fertile, and very fertile.

Point out that barrenness is caused either by *lack of heat*, e.g., lands bordering on Arctic Ocean, or lack of moisture, e.g., Sahara, desert of Gobi, Kalahari desert, interior of Australia.

Fertility depends upon (1) temperate or tropical heat, (2) plenty of moisture, and (3) richness of soil.

Discuss the uses of plants: (1) Food, as grains, fruits, and roots, (2) clothing, as cotton, flax, hemp, (3) timber, (4) medicine, etc.

TOPICS: Where plants live, length of season needed, transporting plants.

### 2.—Plants of the Hot Belt, Page 29.

By reference to the map on page 24, review the surface, winds, rainfall, and seasons of the hot belt.

In teaching this lesson, where possible have specimens of the things mentioned in the text to show the pupils and refer to the pictures to be found in the book. For example, palm trees are found on pages 2, 191, 195, 203; India rubber in the lower left-hand corner, page 30; bamboo, page 185; bananas, page 28; breadfruit, page 30; nutmegs, cloves, and cinnamon, page 187; cotton, pages 31, 64 and 124; sugar-cane and rice, page 64, etc.

Discuss each plant as follows: Point out its characteristics, its uses, and where it grows in abundance and attains perfection.

TOPICS: Important and useful plants which grow in the hot belt. Palms, woods, bamboo, spices, food plants, fibre plants.

### 3.—Plants of the Warm Belts, Page 30.

As in the last lesson, review the position, surface, and climate of the warm belts. Pursue a plan similar to that of the last lesson. Pictures of figs are on page 180; of oranges on pages 31 and 65; of cotton on pages 31, 64 and 124; of tea on page 184; of sugar-cane on page 64, etc. As each plant is discussed call attention to the particular part of earth where it grows in abundance and attains perfection.

Discuss each plant as recommended in the last lesson.

TOPICS: Figs, dates, olives, grapes, cotton, grains, tea, sugar-cane, tobacco, mulberry.

### 4.—Plants of the Cool Belts, Page 31.

As in the previous lessons, review the position and climate of the cool belts.

Specimens of the grains and seeds mentioned in the lesson should be kept in bottles properly labelled. Town and city pupils will soon become familiar with the common grains if these are kept where they can be readily seen.

The trees of the neighborhood should be studied in Nature-Study lessons. Pupils should be able to recognize common native trees by their leaves, their bark, or their wood. In discussing the uses of trees, refer to the map and picture on page 77, and to the pictures on pages 78, 79 and 104.

The common orchard-fruits and vegetables of the neighborhood should be studied in Nature-Study lessons.

TOPICS: Grains, fibre plants, forests, fruits, vegetables.

### 5.—Plants of the Northern Cold Belt, Page 31.

Review the position, surface, and climate of this belt. Make pupils familiar with the common trees of the neighborhood. Amongst them will, no doubt, be found some or all of those mentioned in the lesson.

Familiarize the pupils with the mosses and lichens of the neighborhood. Point out lichens growing on stones and old fences. It will thus become clear how hardy this form of vegetation is.

TOPICS: Trees, tundras, mosses, lichens.

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## ANIMALS

### 1.—Animals and their Homes, Page 32.

The purpose of this lesson is to show the connection between the form and structure of the animal and its habitat and mode of living.

So far as possible the animal itself should be observed. In default of this, study the picture as given in the text.

Point out the use of animals to man. Show the absurdity of destroying useful animals, e.g., owls. Owls eat field mice, which would girdle the fruit trees and ornamental shrubs of the farms.

Classify animals as regards their use as follows:—

1. Animals used for food, as cattle, etc.

2. For clothing, as sheep and fur-bearing animals.

3. Beasts of burden and those used for transportation, as horses, camels, etc.

4. Scavengers, as vultures, etc.

TOPICS: Structure and food, covering, homes, means of defence, barriers to travel, domestic animals, realms.

### 2.—South American Realm, Page 33.

Have the realm located.

As the text is studied, the pupils should look for pictures of the various animals. The chief characteristics of each should be impressed, and the observation made keen and accurate by drawing the animal as shown in the picture.

In each case bring out the adaptability of each important animal to its mode of living; thus, the jaguar seizes its prey with its strong, sharp claws; the ant-eater catches ants with its long, sticky tongue; the peccary has a strong nose for rooting, etc.

TOPICS: Where located: llama and alpaca, rhea, jaguar and puma, condor, tapir, ant-eater, armadillo, sloth, iguana, peccaries, alligator, monkey, birds.

### 3.—Northern Realm, Page 33.

Follow the plans suggested in lessons 1 and 2.

TOPICS: Bear, bighorn, chamois, yak, elk (page 34), reindeer (page 46), caribou, walrus, seals, sea-fowl.

### 4.—African Realm, Page 34.

Follow the suggestions in lessons 1 and 2 on animals.

TOPICS: Apes, camel, African elephant, lion and leopard, rhinoceros (page 36), giraffe, ostrich, crocodile, tsetse fly, Cape buffalo, zebra and quagga.

### 5.—Oriental Realm, Page 35.

Follow the suggestions in lessons 1 and 2 on animals.

TOPICS: Orang-outan, zebu, buffalo, Asiatic elephant, gavial.

### 6.—Australian Realm, Page 36.

See suggestions for lessons 1 and 2 on animals.

TOPICS: Pouched animals, kangaroo, birds, cattle.

### 7.—The Bottom of the Sea, Page 37.

Review lesson 5, page 6, on the oceans.

Explain that the regions of volcanoes lie along the lines of the younger mountain folds and they are almost invariably found near the sea. Turn to the map of the World's Ridge and trace the Pacific Ocean on it. This ocean is almost girdled by chains of comparatively young mountains, and in these folds of the earth's crust the majority of the volcanoes are now found. A second zone of volcanoes runs between the Northern and Southern continents and intersects the first zone nearly at right angles. Volcanoes are very numerous at the points of intersection of these two zones, viz., in Central America and the East Indies.

Explain that all high islands of small area, far from continents, are of volcanic origin; and give examples, as St. Helena, Sandwich Islands, New Hebrides, Fiji Islands, Solomon Islands, etc.

Show how the bottom of the ocean differs from the surface of the land. Originally both had great folds, but on the land rain, change of temperature, wind, rivers, etc., are at work carving and sculpturing it, and thus making the surface irregular. On the other hand, the ocean areas are the gathering-grounds for the waste of the land, and the oceanic plateaus are not subjected to destructive agencies like the land, hence the bottom of the sea is much smoother than the surface of the land.

Explain that there are often immense numbers of minute animals which give their color to the water. Thus, the Red Sea receives its name from the color of its water. Sometimes these tiny creatures glow like fire

when the water is stirred by a passing vessel. The water is then said to be phosphorescent.

Explain that sponges are the skeletons of animals. They grow on rocks on the ocean bed. Divers cut off the best ones. The cheaper are dragged off by rakes like those used in oyster fishing. The best sponges come from the eastern part of the Mediterranean. West Indian sponges are not of as good quality.

TOPICS: Volcanoes, mountains, difference between the bottom of sea and surface of land, color of water, sponge.

**8.—Coral Islands, Page 37.**

Have specimens of coral to show the class.

Explain that the coral polyp can work only in warm, shallow, clear water; that the water must not fall below 67° F. in temperature nor be more than about 120 feet deep.

There are three kinds of coral islands.

1. The polyps build their reef close to the coast, thus forming a FRINGING-REEF.

2. If the land now sinks slowly while the polyps continue their building, a greater space is left between the reef and the island; the fringing-reef now becomes a BARRIER-REEF.

3. If the sinking continues, the island may disappear, and the coral reef will then enclose a circular lagoon. This coral island is called an ATOLL (see page 37).

Many of the small islands in the Pacific and Indian Oceans are of coral formation; such are the Laccadive and Maldive Islands and the great Barrier-reef of Australia, the Gilbert and the Marshall archipelagoes, etc.

The chief food plants on many coral islands are bread-fruit, cocoanuts, and bananas.

TOPICS: How coral grows, work of waves on coral, how soil is made, how seeds are borne.

## RACES OF MEN.

### Introduction, Page 38.

By the use of the pictures in the text-book, impress the fact that people differ, not only in looks, but also in their mode of living. Make a careful study of the picture of each race as it is mentioned. On the map, on page 38, note the barriers which separate the races.

As the race is mentioned, and while the pictures are being studied, the teacher should tell some of its leading characteristics. In this way this lesson will be a proper introduction to the more minute study of the Races of Men.

TOPICS: The races, their number, their homes.

### 1.—The Negro or Black Race, Page 39.

In these lessons the most important thing is to *use the maps*. Be sure the home of each race is clearly defined in the mind of the pupil. Use the maps of the continents as well as that on page 38. Review constantly.

Have the pictures carefully studied and lead pupils to describe them.

Explain that the BLACK TYPE originally inhabited HOT countries; that there are two main subdivisions of the type: the African, inhabiting the whole of Africa south of the Sahara, and the Australasian, occupying Australia, New Guinea and the small islands forming such groups as the Solomon Islands, the New Hebrides, Fiji Islands, etc.; that the negro of Central Africa is taken as the standard type; that there are many tribes in each subdivision, hence we read of Zulus, Basutos, Bechuanas, Matabeles, etc., which are all included under the term Kaffirs, Hottentots, etc.

TOPICS: Negro features, subdivisions, home of black race, number.

### 2.—The American or Red Race, Page 40.

Follow the suggestions given in the last lesson.

Explain that the Red Race comprises all the native American tribes except the Esquimo; that the race is gradually dying out; that in Canada and the United States they are comparatively few in number, but in Mexico, Central America and South America they are much more numerous; that their total number now is less than 20,000,000; that the name Indian was due to a mistake of Columbus, who thought that the island on which he first landed was a part of the *Indies*, and hence he called the whole archipelago the "Indies." The name is still retained in West Indies.

TOPICS: Indian features, reservations, their mode of living, Indians of Peru and Mexico, Indian babies, tribes, number, games, etc.

### 3.—The Malay or Brown Race, Page 42.

Use the maps constantly; locate each place mentioned in the text. Study the pictures on page 42.

This race seems to have some characteristics of the three chief races. They resemble the White Race in the shape of the skull and appearance of the eyes; the Yellow, in their long, coarse, black hair; and the Black, in the flattened features.

TOPICS: Home of Brown race, Malay features, Maoris, mode of living, number.

### 4.—The Mongolian or Yellow Race, Page 43.

Locate all places on the maps.

Use the pictures on pages 44, 45 and 46.

Explain that the most important members of this race are the Chinese, Japanese, Burmese and Siamese of Eastern and South-eastern Asia; the Mongol-Tartars of Central

and Northern Asia; the Finns, Lapps and Samoyedes of Northern Europe; the Eskimos of Greenland and the Arctic shores of America and Asia; the Magyars of Hungary, and the Turks of the Balkan Peninsula.

TOPICS: Mongolian features, home of yellow race, number of the race, Japan and its people, the Chinese, the Eskimos, a Lapland home.

### 5.—The Caucasian or White Race, Page 47.

Locate every place; use the pictures on pages 47, 48 and 49.

The CAUCASIAN RACE inhabits Europe, Western and South-western Asia, Northern Africa, America, etc. There are two sections of this race, the LIGHT and the DARK.

The chief *light* races are:—

1. *The Teutonic*, inhabiting England and her colonies, the United States, Germany, Scandinavia, Denmark.

2. *The Slav*, inhabiting Russia, Poland, Bulgaria, Servia.

3. *The Caucasic*, including the Georgians, Afghans, and the Berbers of North Africa.

The chief *dark* races are:—

1. *The Romanic* peoples of Southern Europe.

2. *The Semitic* peoples, including Arabs, Syrians and Jews.

3. *The Hamitic*, including Egyptians, Lybians, Numidians, Copts, Somali and Gallas.

4. *The Asiatic Aryans*, comprising the Hindus, Persians, Armenians, Baluchis, Kurds, etc.

TOPICS: Characteristic features, home of the white race, subdivisions of, number, children of Holland, children of Switzerland, Arabs.

### 6.—Religions, Page 50.

Explain that the idea of a Higher Power is common to all men, and is expressed in some form or other by almost every people. The outcome of this belief is RELIGION. The form of religion nearly indicates the degree of civilization. The highest forms of religion have produced the highest civilizations. Barbarous peoples worship imaginary gods and malevolent spirits; degraded savages dread evil spirits that must be propitiated by cruel rites and horrible sacrifices.

There are two great classes of religion—*Monotheism* and *Polytheism*.

1. MONOTHEISM believes in *one* God—the Creator and Preserver of all things. There are three great subdivisions of this class:—

(*a*) *Judaism*, the religion of the Jews, accepts the Old Testament, and is yet looking for the coming of the Messiah.

(*b*) *Christianity* accepts both the Old and New Testaments, and acknowledges Jesus Christ as the Saviour of Mankind.

This is subdivided into three great sections:—

(1) Protestantism, which acknowledges no other authority than the Bible, and adopts two sacraments, viz., Baptism and the Lord's Supper.

(2) Roman Catholicism, of which the Pope is the head, and which admits seven sacraments.

(3) The Greek Church, which does not admit the supremacy of the Pope, but is nominally governed by Patriarchs, but practically by the head of the state where it is the established religion.

(*c*) *Mohammedanism*, founded by Mohammed A.D. 622, believes in one God, with Mohammed as

his apostle, in the authority of the Koran, in angels, in the devil, in the immortality of the soul, in fatalism, the resurrection, and the day of judgment. There have been great apostles sent by God to reveal His will; Mahomet was the last, the others being Adam, Noah, Abraham, Moses and Jesus.

2. POLYTHEISM embraces all heathen religions. It believes in many gods, or rather in many powers of evil and of good. Some of its chief branches are the following :--

(*a*) ***Brahmanism***, which believes in three deities—Brahma, the creator of the world; Vishnu, the preserver; and Siva, the destroyer. These, and many minor divinities and idols, are worshipped. It also subdivides society into hereditary classes or castes, and believes in the transmigration of souls. The Vedas is the sacred book of the Brahmins.

(*b*) ***Buddhism***, which has practically died out in India, but is the prevailing religion in China, Japan, Burmah, Nepaul and Ceylon.

Buddhism is a reformation of Brahmanism. It was a protest against caste, proclaiming that all men are equal. It abolished animal sacrifices, placed stress upon the transmigration of souls, assigned great importance to austerity and abstract meditation, recognized no supreme being except what man himself may become; hence a Buddhist never prays.

(*c*) ***Fetishism***, which is the religion of degraded African tribes and other savages. This religion consists in the dread of evil spirits and a belief

in the protecting power of fetishes. A fetish is usually a material object believed to be the dwelling place of a spirit that may be induced or compelled to help the possessor.

TOPICS: Pagans, Brahmanists, Buddhists, Christians, Jewish people, Mohammedans.

### 7.—Governments, Page 51.

In this lesson make constant use of maps.

Show the necessity for government by referring to the family and the school.

Explain that there are three degrees of progress to be noted among the peoples of the earth: that of the *savage* life, that of the *barbarous* life, and that of the *civilized* life.

In the SAVAGE state man lives in caves or rude huts, subsists on wild game, fish, and roots and fruits, does not cultivate the soil, leads a roaming life, and possesses little intelligence.

BARBAROUS peoples keep herds of animals and obtain from them meat and milk for food and wool for clothing; they live in tents and wander from place to place in search of pasturage.

CIVILIZED life is characterized by the people having fixed homes. They engage in agriculture, skilled manufactures, trade and commerce, etc., and are intelligent, prosperous and cultivated.

Try to explain the origin of governments. Imagine a number of families banding together under one head for mutual protection, thus forming a tribe and governed by a chief.

Then, with better means of communication and the adoption of a common language and religion, tribal distinctions were lost, and tribe after tribe banded together and formed one people or nation.

Classify governments as follows :—

I. Patriarchal.—The head is a chief or sheikh.
Examples, savage and barbarous peoples.

II. Monarchical.

1. Limited Monarchy.—The head is a king, queen, emperor, or empress.
Examples, Great Britain, Germany, Austria-Hungary, Japan.

2. Absolute Monarchy.—The head is a czar, sultan, shah, ameer, etc.
Examples, Russia, Turkey, Persia, Afghanistan.

III. Republican.
United States, France, Switzerland, etc.

TOPICS: Necessity for government, Tribal, Monarchical, Republican.

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## DOMESTIC AND FOREIGN COMMERCE.

**Introduction, Page 52.**

Explain that one country produces a SURPLUS of one article and REQUIRES another which it cannot produce. Thus, the north-west provinces of Canada produce *wheat* and need *clothing* and *machinery*. Hence, the wheat is sent to eastern Canada or Great Britain, and machinery and cloth, which are manufactured in these places, sent to the North-West. The cotton fields of Egypt supply the raw material for the mills of Lancashire, and the cotton spinners of Lancashire send to Egypt the cotton cloth required by the dwellers in the Nile valley. The fishermen of Norway supply the wine growers of Spain with dried fish, and in return receive the wines which they need but cannot produce.

It will thus be seen that the natural conditions of commerce are :—

1. Variety of production.

2. Diversity of occupation.

3. Multiplicity of wants.

Show why Great Britain leads in commerce :—

1. Abundance of coal and iron, enabling manufactures to be carried on cheaply.

2. Its convenient geographical position being at the centre of the land hemisphere, see map, page 4.

3. The great number of her colonies and foreign possessions.

4. Its cheap means of transit. For commercial purposes water really connects; it does not separate.

5. The enterprise and energy of its people.

Speak of aids to commerce as follows :—

1. Facility of transportation by rivers and canals, lakes and railroads.

2. Steamships. A steamship can make four voyages for one of a sailing vessel, and hence will carry four times as much cargo in a year as a sailing vessel of the same tonnage.

3. Fine harbors and good docks.

Use the maps and locate the places mentioned in this lesson.

INTERNATIONAL DATE LINE. The map on page 52 shows where a new day begins. The international date line is very crooked and scarcely coincides at all with the meridian of 180°. In going towards the west 24 hours is omitted; thus if the crossing of the line takes place on Sunday, this day is called Monday. In going towards the east a day is repeated; thus if the crossing takes place on Monday, this day is called Sunday.

TOPICS: Necessity for commerce; domestic, foreign, aids to, why Great Britain excels in trade.

**Routes of Trade, Page 53.**

Use the maps to locate all places mentioned.

Explain how canals aid commerce by preventing the unloading and reloading of cargoes while in transit, and by lessening the distance of carriage. The cost of loading and unloading goods is a very considerable item in the cost of transportation.

Give examples of canals, as the Welland, to overcome Niagara Falls, the Suez Canal, to shorten the distance from England to India by 5,000 miles, the Manchester Canal, which makes Manchester a seaport.

Point out that there are three kinds of canals in use:—

1. Canals with *locks*. In the route from one body of water to another these surmount the intervening elevation by locks, as the Welland Canal.

2. Canals with *gates* at their entrance, as the Amsterdam Canal. These traverse low-lying districts, and have a uniform water-level from end to end.

3. Canals without *locks* or *gates*, as the Suez Canal.

Show that water routes are cheaper than land ones by such examples as the following:—

In 1903 it cost 12 cents to carry a bushel of wheat from Regina to Fort William, a distance of 780 miles, but only between five and six cents per bushel to carry it by water from Fort William to Montreal, a distance of 1,224 miles.

Give examples of trade centres, and explain the advantages of each. Thus New York is at the mouth of a great waterway leading into the interior; Montreal was at the head of navigation of the St. Lawrence before the canals were built; Winnipeg is at the confluence of the Red and Assiniboine rivers.

Point out a number of the railroad routes across this continent. Thus the Canadian Pacific Railway runs from Halifax to Vancouver, a distance of 3,662 miles: the

Northern Pacific runs from Duluth to Portland, Oregon; the Southern Pacific runs from New Orleans to San Francisco; the Union Pacific runs from Chicago to Oakland, near San Francisco.

TOPICS: Need of commerce, examples of foreign products, aids to commerce, centres of trade.

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## NORTH AMERICA.

### 1.—Map-Studies, Page 55.

Use the globe maps on pages 4 and 6 to show the location of North America in the world ridge and the relative position of the other continents and the oceans. A few questions will serve to direct the globe-map study, as: What oceans and continents would be crossed in going due east round the earth from the region of the Great Lakes? What oceans would flow together if North America were to sink below the level of the sea?

The object of "Map-studies" is to familiarize pupils with maps and to enable them to understand maps and thus be able to read them properly.

The answers to the questions are not to be memorized, although, doubtless, the clear understanding that should result from these map-studies will enable pupils to remember much.

If necessary, consult the map on page 57.

### 2.—Shape and Surface, Page 56.

Let the lesson be used for oral reading. Question the pupils closely on what has been read. Train them to the habit of referring to the maps for every place or region named in the text. Be sure that each pupil has right notions of the slope of the land, and then have him reason from the direction of the slope of the land, the direction of the courses of the streams. Make use of the moulding-

board or sand-table to impress the general slope of the region. Avoid the use of such terms as "up north," "down south" when referring to maps.

TOPICS: Shape of North America, size, general surface, Rocky Mountains, Appalachian Mountains, Laurentian Highlands.

### 3.—Climate, Page 56.

Turn to the map of the heat belts, page 24, to discover what part of North America is in each belt.

Have pupils make a sketch map of North America, and mark the region of the Trade Winds and of the Westerly Winds. Review the principles taught in the lesson on Winds and Rainfall, page 15. It will soon be clear why the western slopes of the Mexican highland are not well watered; and further north, why there is a dry region along the eastern side of the Rocky Mountains.

TOPICS: Parts of North America in each heat belt, character of climate in each belt, rainfall of each part.

### 4.—Rocky Mountain Highlands, Page 58.

Explain that the name, Rocky Mountain Highland, is given to the entire western highland of North America, while the name Rocky Mountains is applied only to the eastern mountain system of this highland, extending from near the Mexican boundary into Alaska.

Then study the Rocky Mountains proper, on the relief maps, on pages 54 and 68. Lead the class to discover that these mountains are not a single range, but consist of many ranges; that the parts of these mountains in the United States and Canada lie far inland; that they form the divide between many large rivers; that they lie along the eastern border of the great western highland; what large rivers drain the various parts of the Rocky Mountains; etc.

In a similar way study the Great Basin, the Sierra Nevada, Cascade, and Coast ranges.

Review the chief things that affect climate, and have pupils explain why the climate of British Columbia is so mild, and why, as one proceeds eastward, the rainfall is less.

Speak of the great irrigation works of California, and how these have made it possible for California to become a great fruit-growing region. Refer to the irrigation works now being constructed in Alberta in the expectation that what is now only ranching ground may become wheat-growing farms.

TOPICS: Rocky Mountain Highland, Mexican Plateau, Rocky Mountains, Great Basin, Sierra Nevada Mountains, Cascade Mountains, Coast Mountains.

### 5.—The Appalachian Highland, Page 59.

Make use of the maps on pages 54, 55, 57 and 123. Explain that the Appalachian Highland consists of several parallel ridges divided by longitudinal valleys having a breadth of about 100 miles and a mean elevation of 2,500 feet, and extends from the table-lands of Alabama in a north-easterly direction to the St. Lawrence river.

Have the lesson read orally, and question the pupil as to the content of each paragraph.

Explain that towns grow up about falls because the water power is available to drive the machinery of lumbering and flour mills in the beginning, and later, this power is used in various kinds of manufactures.

Have each of the rivers mentioned in the text traced on the outline map prepared by the pupils, and on this map mark also the course of the Erie canal from Buffalo to Albany, a distance of 352 miles.

TOPICS: New England Highland, White Mountains, Green Mountains, origin of the many lakes and water-

falls, use of the waterfalls, Blue Ridge, Great Valley, rivers of Appalachian region, Erie Canal.

### 6.—The Laurentian Highland, Page 61.

Explain that this highland is a plateau from 1,000 to 1,600 feet high; that it is well wooded in the southern and western parts with forests of pine and spruce; that there are numberless lakes and streams; that the mountains have been worn down to the present moderate height by the glacier that covered all the northern part of this continent, and flowed from the centre of the Labrador peninsula.

Trace the highland on the relief map, page 54.

TOPICS: Position of highland, its character, lakes and swamps, Gulf and River St. Lawrence, animals.

### 7.—The St. Lawrence Basin, Page 61.

Trace this basin on an outline map similar to that on pages 68 and 69.

Locate each lake and river on the map, pages 72 and 73.

The following table will supply additional facts regarding the great lakes:—

| LAKE. | Length. | Width. | Area. | Height of surface above sea level. | Depth of water. |
|---|---|---|---|---|---|
| | Miles. | Miles. | Sq. Miles. | Feet. | Feet. |
| Superior | 420 | 160 | 32,000 | 602 | 1,008 |
| Michigan | 345 | 90 | 23,000 | 578 | 1,000 |
| Huron | 400 | 105 | 23,000 | 576 | 734 |
| Erie | 250 | 58 | 7,800 | 566 | 270 |
| Ontario | 190 | 55 | 6,900 | 240 | 500 |

Explain that there are two canals at Sault Ste. Marie, one in the United States and the other in Canada. The

Canadian lock is 900 feet long, 60 feet wide, and the water is 20¼ feet deep at the lowest known water level of Superior.

Consult pages 12 and 91 for pictures of the falls and gorge at Niagara.

For the canals on the St. Lawrence system see page 220. The locks on these canals are 270 feet long, 45 feet wide, and will admit vessels drawing 14 feet of water.

TOPICS: St. Lawrence system, origin of the great lakes, source of water supply, Sault Ste. Marie Canal, Niagara Falls and Gorge, Welland Canal, trade on the great lakes.

### 8.—The Great Central Plain, Page 63.

On the relief map of North America, page 54, trace the Great Central Plain as described in the text. Draw an outline map of North America and trace this plain.

Trace each of the three great river systems which drain it, on both maps.

Question closely as to the nature of each subdivision of the plain.

Turn to the map, page 72, and observe the lakes in the basin of the Nelson river, Winnipeg, Manitoba, and Winnipegosis. Observe also the lakes in the basin of the Mackenzie river, Athabasca, Great Slave, Great Bear.

TOPICS: Boundaries of Central plain, subdivisions, Arctic plains, Basin of Nelson, Red river prairies, Mississippi prairies, Southern plain.

### 9.—The Atlantic Coastal Plain, Page 64.

Have this lesson read orally and question carefully. Give the boundaries of the Atlantic Coastal Plain.

How was it formed? How can the age of a region be judged? Tell the climate of the Coastal Plain. Why is rainfall abundant in this plain? Why are good harbors

scarce in the southern part of it? How has the peninsula of Florida been formed? etc.

Explain that Charleston and Savannah, being on tidal rivers, have good harbors and are important ports for cotton, rice, and pine.

TOPICS: Boundaries, surface, climate, products, Florida.

### 10.—The West Indies, Page 65.

The West Indies stretch in a curve from Florida to the mouth of the Orinoco.

They are subdivided as follows:—

(*a*) The Greater Antilles: Cuba, Hayti, Jamaica, and Porto Rico—These are large islands more or less mountainous.

(*b*) The Lesser Antilles: A series of volcanic mountain tops.

1. The Leeward Isles, from the Virgin Islands to Dominica.
2. The Windward Isles, from Martinique to Trinidad.
3. The Venezuelan Coast Islands.

(*c*) The Bahamas: A group of low, flat, coral islands.

These islands were originally inhabited by a fierce race of Indians called "Caribs"—hence the name Caribbean Sea.

The chief products are sugar, rum, molasses, tobacco, cotton, coffee, cocoa, spices, and dyewoods.

One of the wonders of the West Indies is the lake of asphalt in Trinidad.

TOPICS: Position, subdivisions, productions.

## DOMINION OF CANADA.

### 1.—Map Studies, Page 66.

Use the maps on pages 72, 73, 68, 69, 54 and 55 in answering these questions.

For the answer to the question, "Why are there so many lakes in Canada?" see the lesson on the Appalachian Highland, page 59.

The western coast is warmer than the eastern owing to the westerly winds bringing in heat from the Pacific Ocean (see page 56), and the absence of any Arctic current to cool the air. See map, page 19.

During a considerable part of each year, Hudson Strait is blocked with ice brought from the Arctic regions by polar currents. The ice of Hudson Bay itself is comparatively thin.

### 2.—Canada Past and Present, Page 67.

Have this lesson read orally and question the pupils carefully.

Explain that the Iroquois occupied a stretch of country from the Hudson river westward up the Mohawk valley, and across what is now the State of New York. See map, page 123.

The Hurons occupied the region between Lake Simcoe and Georgian Bay.

The Algonquin group occupied what is now New England, Nova Scotia, New Brunswick, the northern heights of the lower St. Lawrence valley, and stretched up the Ottawa, past Lake Nipissing across the head of Georgian Bay and Lake Huron, to Lake Superior.

TOPICS:—Condition of Canada before the white men came, condition of Canada to-day.

### 3.—Area, Page 67.

This lesson is merely to be read. It is not to be memorized.

The areas of the countries named are given on page 218.

TOPICS: Area of Canada compared with other countries.

### 4.—Climate, Page 70.

Trace the divisions given in this lesson on the map on pages 72 and 73.

Explain that the eddying storms (see page 15) that originate in the valley of the Mississippi and pass eastward through Canada, bring in vapor-laden wind from the east, and so the eastern part of Canada has an ample rainfall.

The prevailing winds in British Columbia are the Westerlies. These drop their moisture in the mountains and reach the plains to the east as dry winds.

TOPICS: Three climatic sections in Canada, climate of each.

### 5.—Government, Page 71.

Have this lesson studied, and question the pupils carefully about each part. See topics given below.

Explain that the *legislative* power is a *Parliament* constituted as follows:—

(*a*) HOUSE OF COMMONS, whose members are elected by the people of Canada. *Any* bill may and *all money* bills must originate in this House. It controls the revenue and the expenditure.

(*b*) SENATE OR UPPER HOUSE, whose members are appointed for life by the Privy Council of Canada.

(*c*) GOVERNOR-GENERAL, appointed by the Privy Council of Great Britain and Ireland, and representing the King.

Explain that the *executive* power is a *Privy Council* composed of the Governor-General and members summoned by him. In *practice* these are: the *leader* of the dominant party in the House of Commons and *members of both Senate and Commons* recommended by him to the Governor-General for appointment.

The administration of the laws is entrusted to judges *appointed* by the Privy Council of Canada, and to magistrates *appointed* by the Executive Councils of the Provinces.

TOPICS: King, Governor-General, self-government, federal government, parliament of Canada, senate, house of commons, cabinet.

### 6.—Canada Commercially and Industrially, Page 76.

TOPICS: Canada as a producing nation, chief industries.

### 7.—Agriculture, Page 76.

Use the map on page 75 in having the wheat regions located.

Explain that, in the older provinces, it is impossible for the farmers to compete with those in the North-West Provinces in grain-growing. The latter have large farms, the soil is rich and not exhausted from cropping, and needs little tillage. Hence the farmers in eastern Canada have ceased to grow wheat for export, and now confine their attention to stock-raising, dairy products, and fruit-growing.

For the exports of 1904 see page 220, and, as each product is mentioned in the text, turn to this page to discover the value of this export of Canada.

TOPICS: Grain-growing, wheat regions, stock-raising, dairy products, fruit-growing.

### 8.—The Lumber Trade, Page 78.

Locate each place mentioned in the text.

Study the pictures on pages 77, 78, 79 and 104.

The value of the products of the forest in 1904 is given on page 220.

TOPICS: The lumber trade, where carried on, trees used, forest regions, spruce logging, New Brunswick, Quebec, Ontario, British Columbia, tanning, wood pulp.

### 9.—Coal, Page 79.

Locate each province and the coal mines in it; see map, page 82.

The value of coal mined and exported is given on page 220.

TOPICS: Coal, whence obtained, uses, coal-fields, British Columbia, Nova Scotia, New Brunswick, North-West coal.

### 10.—Gold, Page 80.

Locate each place mentioned; see map, page 82.

TOPICS: Precious metals, quartz-bearing gold, placer mining, gold-fields, Nova Scotia, Quebec, Ontario, British Columbia, Yukon, Dawson.

### 11.—Other Minerals, Page 81.

Locate the places mentioned on the maps of the various provinces.

TOPICS: Other minerals, silver, nickel, copper, petroleum, iron, antimony, gypsum.

### 12.—The Fur Trade, Page 83.

Explain that the Hudson's Bay Company was formed in 1670 by Charles II. of England granting a charter to Prince Rupert and his associates to trade in Hudson's Bay and its basin. The company established trading posts on the shores of the bay and opened up a lucrative trade with

the Indian tribes of the interior. This led to trouble between the French and English fur-traders, and many skirmishes took place between the rival traders.

In 1786 a rival company was formed at Montreal, called the North-West Company. This company pushed its operations from Lake Superior westward, and again there was trouble between the employees of the two companies. The country was, however, explored, and trading posts established all over the interior of the immense territory between Lake Superior and the Pacific. In 1821 the two companies agreed to unite to form a new company, to be known as Hudson's Bay Company. In 1869 Canada paid $1,500,000 to this company, which surrendered its trade monopoly and all claims to govern in the vast territory over which the trading posts were scattered.

Explain that the three great fur-markets of the world are Leipzig in Germany, London in England and Nizhni-Novogorod in Russia; that more than half of the furs brought to London are sent to Leipzig; that Russian furs from Siberia, China and Turkestan are collected at Nizhni-Novogorod, dressed and finished, and sent to Leipzig to be sold to manufacturers of fur goods.

TOPICS: French fur traders, Hudson's Bay Company, chief fur-bearing animals.

### 13.—Fisheries, Page 83.

Explain that there are three great fishing centres in the world; one in the North Sea, frequented by British, Norwegian, Danish, and other fishermen; one in the north-western part of the Atlantic Ocean, frequented by Canadian, British, French and United States vessels; and one in the Northern Pacific.

The fishing grounds in the north-western Atlantic Ocean are the most valuable in the world. The Labrador current

brings to the shallow waters of the coast vast quantities of algæ upon which the fish feed. There are 10,000 miles of coast-fishing here.

The fish-hatcheries are the following :—

In Nova Scotia—Bedford, Bay View, Margaree.

In New Brunswick—Grand Falls, Miramichi, Restigouche, Shemogue, Shippigan.

In Prince Edward Island—Charlottetown.

In Quebec—Gaspé, Tadoussac, Magog, St. Alexis des Monts.

In Ontario—Newcastle, Sandwich, Ottawa.

In Manitoba—Selkirk.

In British Columbia—Fraser River, Granite Creek, Skeena River, Alert Bay, Harrison Lake.

TOPICS : Fisheries, growth of the fishing industry, canning, salmon, lobsters, oysters, fish-breeding establishments.

### 14.—Manufactures, Page 84.

The chief Canadian manufactures are as follows :—

1. *Cotton.*—There are 22 cotton mills in Canada manufacturing fabrics worth $12,000,000 a year. Large mills are situated at Valleyfield, Montreal, Montmorenci, and Magog, in Quebec; at St. John, New Brunswick, and at Hamilton, Ont.

2. *Woollen Goods.*—There are 275 large centres of woollen manufactures, as Guelph, Woodstock, Peterboro, Brantford, Kingston, Almonte, Hespeler, Toronto, Campbellford, Chatham, Paris, Cobourg, Stratford, Galt, Renfrew, Preston, etc., in Ontario; Sherbrooke, St. Hyacinthe, Montreal, Lachute, Chambly, Quebec, etc., in Quebec; New Glasgow and Oxford, in Nova Scotia.

3. *Boots and Shoes.*—The chief factories are situated in Montreal and Quebec, in Quebec; in Toronto, London, Hamilton, Berlin and Aylmer, in Ontario.

4. *Trunks and Valises* are manufactured in Toronto and Montreal; *Gloves* in Brockville, Toronto, Acton, Berlin, in Ontario; and Montreal, Quebec and Three Rivers, in Quebec.

5. *Furniture.*—Important centres are Toronto, Preston, London, Woodstock and Ottawa.

6. *Manufactures of Iron and Steel* are carried on in every part of the Dominion. Ontario and Quebec produce the greater bulk of such

articles as stoves, castings, machinery, hardware, locomotives, cars, sewing machines, bicycles, etc.

7. *Agricultural Implements* are made in Toronto, Hamilton, London, Brantford, Lindsay, Guelph, Preston, Smith's Falls, St. Mary's, Ingersoll, etc., in Ontario; and in Cowansville, Joliette and Montmagny, in Quebec.

8. *Gold and Silverware* is manufactured in Toronto and Montreal.

9. *Glass.*—Glassware is extensively manufactured at Montreal and at Toronto and Wallaceburg, in Ontario.

10. *Sugar Refining.*—Extensive refineries are situated at Montreal and Halifax.

11. *Canned Goods.*—Fruits and vegetables are extensively canned at Hamilton, Delhi, Simcoe, Chatham, Trenton, and many other places in Ontario.

12. *Meat Canning.*—There are large establishments at Toronto, St. Thomas, Ingersoll, Peterboro and Hamilton, in Ontario; and at Winnipeg, Manitoba.

13. *Electric Apparatus.*—Extensive factories are situated in Peterboro, Toronto and Montreal.

14. *Musical Instruments.*—Extensive factories are situated in Toronto, Woodstock, London, Guelph, Clinton, etc., in Ontario.

15. *Tobacco.*—The largest factories are situated in Montreal, Quebec, Toronto, London and Leamington.

16. *Rubber Goods.*—Centres of this industry are Montreal and Granby, in Quebec; and Toronto, in Ontario.

### 15.—Railways, Page 86.

Locate each place mentioned in the text.

Trace each line on the map of Canada, page 72, 73. The main line of the Canadian Pacific Railway spans the continent from St. John to Vancouver, a distance of 3,387 miles, and has running privileges over the Intercolonial to Halifax. It passes through Montreal, Ottawa, North Bay, Fort William, Winnipeg, Regina, Calgary, etc., and shortens the distance between Liverpool and China by 1,000 miles, and gives an alternative route to Australia as short as that by the Suez Canal.

*The Grand Trunk* runs from Portland in Maine to Chicago, a distance of 1,138 miles. It passes through

Sherbrooke, Richmond, Montreal, Cornwall, Kingston, Belleville, Toronto, Guelph, Stratford, Sarnia, Detroit, etc. It passes under the St. Clair River at Sarnia, in a tunnel 11,553 feet long, including the approaches. It is a continuous iron tube, and it took two years to construct it, the cost being $2,700,000. See page 94. It also crosses the St. Lawrence River at Montreal by the Victoria Bridge, which is doubled-tracked and has a double carriage-way and a footpath. It is nearly two miles long, and rests on 24 piers.

*The Intercolonial* line runs from Halifax through Truro, Moncton, Newcastle, Metapedia and Rivierè du Loup to Levis, and from Levis through St. Hyacinthe to Montreal, a distance of 840 miles.

*The Canadian Northern* when completed will be a second transcontinental route. It is now, 1905, completed from Fort William through New Ontario, and westward through Winnipeg to Edmonton.

TOPICS: Growth of railways in Canada, four great systems, C.P.R., G.T.R., I.C.R. and C.N.R.

**16.—Canals, Page 86.**

On the Welland and St. Lawrence canals, most of the locks are 270 feet long and 45 feet wide; a few are larger.

For the different canals of the Dominion, see page 220.

For the different kinds of canals which are constructed, see page 63 of this book.

The Murray canal through the Isthmus of Murray, giving connection between the head waters of the Bay of Quinte and Lake Ontario, has no locks.

TOPICS: Welland canal, St. Lawrence canals, Rideau canal, Sault Ste. Marie canal.

**17.—The Waterways of Canada.**

For the dimensions of the principal lakes of Canada see page 220, and also page 67 of this book.

**Ontario—Page 90.**

Have careful attention given to the Map Studies. Although the answers are not to be memorized, yet many of the facts will be readily remembered from the interest pupils take in discovering them for themselves.

Question carefully and closely on the various topics.

The population of the cities and towns is not to be memorized. Each important place should be associated with the county in which it is situated.

Explain that Canada is divided into *provinces* and *territories*.

A province, in Canada, is a subdivision of the country, with power:—To amend its laws; to manage and to sell its public lands and timber; to establish and to maintain public reformatories, prisons, hospitals, charities, etc.; to control its municipal institutions; to manage tavern licenses for revenue purposes; to administer justice; to direct its educational interests, &c.

*Note.*—The authority of the Parliament of Canada extends to:—The public debt, trade and commerce, raising money by any system of taxation, postal service, census, militia, navigation, currency and coinage, banking, weights and measures, criminal law, marriage and divorce; etc., and all classes of subjects not *expressly* stated as coming under the authority of the provinces.

A territory is a subdivision of Canada which is ruled entirely by the central government at Ottawa. This government appoints officials whose duty it is to transact the business which in the case of a province is carried on by the provincial authorities. The authorities at Ottawa may, however, delegate certain powers to local authorities, as in the case of the government of the North-West Territories at Regina, before the provinces of Saskatchewan and Alberta were established.

The Province of Ontario is subdivided into counties and districts.

A county is a division of a province for political, judicial, educational, and local improvement purposes.

Its affairs are managed by a number of men elected by the people, known as County Councillors.

A district is a division of Ontario in which the duties of the county council are largely discharged by the Government of Ontario. Thus, this government erects and maintains the buildings which in a county are erected and maintained by the county; it appoints and pays jailers and other officials; appoints and pays the Public School Inspector a fixed salary; pays the part of the High School grant which in the case of a county is paid by the county, etc.

A township is a subdivision of a county. The local affairs are managed by a township council consisting of five men.

An *incorporated* village must contain 750 or more inhabitants. The local affairs are managed by a council of five men.

A town must have 2,000 or more inhabitants. Its affairs are managed by a mayor and three councillors elected for each ward.

A city must have above 15,000 inhabitants, unless it receives a special charter. Its affairs are managed by a mayor and three alderman elected for each ward.

TOPICS: Physical features, climate, government, agriculture, lumbering, manufactures, mining, fishing, cities and ports of Ontario.

**Quebec—Page 95.**

See remarks under Ontario, page 78.

Additional information:

**Lakes**—*South of the St. Lawrence:* Champlain (in part), Memphremagog, St. Francis, Megantic, Temiscouata, Metapedia. *North of*

*the St. Lawrence:* Manouan, St. John. *Expansions of the Ottawa:* Temiscamingue, Chat, Two Mountains. *Expansions of the St. Lawrence:* St. Francis, St. Louis, St. Peter.

**Rivers**—*Ottawa:* Rouge, Nation, Lièvre, Gatineau, Coulonge, Moine. *St. Lawrence from the North:* Assomption, St. Maurice, Batiscan, St. Anne, Jacques Cartier, St. Charles, Montmorency, Saguenay. *St. Lawrence from the South:* Chateauguay, Richelieu, Yamaska, St. Francis, Nicolet, Becancour, Chaudière, Etchemin. The Temiscouata flows into the St. John, and the Metapedia into the Restigouche. *On the boundaries:* Ottawa, St. John, Restigouche.

**Islands**—*In the Ottawa:* Allumette and Calumet. *At the junction of the Ottawa and the St. Lawrence:* Montreal, Perrot, Jesus (Laval). *Below Quebec:* Orleans and Bic. *In the Gulf:* Anticosti and Magdalens.

**Bays and Gulfs**—Murray, Cacouna, Rimouski, Gaspé, and Chaleur.

TOPICS: Map studies, physical features, agriculture, lumbering, fishing, minerals, manufactures, cities and towns.

**New Brunswick—Page 100.**

Read remarks under Ontario, page 78.

TOPICS: Map studies, surface, rivers, islands, coast waters, towns, soil and products, animals, minerals, climate, industries, communications, education, government, history.

**Nova Scotia—Page 107.**

Read the remarks under Ontario, page 78.

Additional information:

**Islands**—Cape Breton, Sable, Long.

**Bays and Gulfs**—*On the Atlantic:* Chedabucto, Ship, Halifax, Margaret, Mahone, Liverpool, Shelbourne, Yarmouth. *On the Northern Coast:* Verte, Pugwash, Pictou, Antigonish, St. George, Bras d'Or, Sydney. *On the Western Coast:* Fundy, St. Mary, Annapolis, Minas, Cobequid, Avon, Chignecto, Cumberland.

TOPICS: Map studies, physical features, climate, population and government, mining, fishing, agriculture, cities and towns.

### Prince Edward Island—Page 109.

See map, page 106.

**Bays and Gulfs**—Hillsboro, Bedeque, Egmont, Richmond, Cardigan, Murray.

TOPICS: Map studies, history, physical features, soil and climate, people, government, agriculture, fishing, manufactures, towns.

### Manitoba—Page 110.

See remarks on teaching under Ontario, page 78.

Explain that the Red River Valley was at one time the bottom of a great lake, known to geologists as Lake Agassiz, the remains of which are yet to be seen in Lakes Winnipeg, Winnipegosis, and Manitoba.

This valley is now 800 feet above the sea level.

**Rivers**—*Flowing into Lake Winnipeg:* Winnipeg, Red with its tributary the Assiniboine. *Into Assiniboine River:* Souris and Qu'Appelle.

TOPICS: Map studies, history, size and position, physical features, climate, soil, people, government, occupations of the people, cities and towns.

### British Columbia—Page 113.

For remarks on teaching, see Ontario, page 78.

Consult the supplement in the geography.

**Lakes**—Okanagan, Arrow, Kootenay, François, Quesnel.

**Rivers**—Fraser, Columbia, Kootenay, Quesnel, Thompson, Skeena, Findlay, Parsnip, Peace, Athabasca, Okanagan.

**Islands**—Vancouver, Queen Charlotte, San Juan archipelago.

**Bays and Gulfs**—Georgia, Burrard, Bute, Jervis, Nepean, Portland, Nootka, Barclay.

**Straits, Sounds**—Queen Charlotte, Dixon, Johnstone, Broughton, Juan de Fuca.

TOPICS: Map studies, position and size, physical features, climate, government, resources, mines, lumber, fisheries, agriculture, cities and towns.

### Saskatchewan—Page 116.

See remarks on teaching under Ontario, page 78.

Consult the supplement in the geography.

**Rivers** The chief are the North and the South Saskatchewan and the Churchill.

**Lakes** –The principal are Athabasca, Wollaston, and Reindeer.

TOPICS: Map studies, position and size, physical features, climate, government, resources, chief towns.

### Alberta—Page 118.

See remarks on teaching under Ontario, page 78.

Consult the supplement in the geography.

**Rivers** The chief are the Peace, Athabasca, and North and South Saskatchewan, Bow, Red Deer, and Pembina.

**Lakes** The principal are Lesser Slave and a portion of Lake Athabasca.

TOPICS: Map studies, position and size, physical features, climate, government, resources, chief towns.

### The Yukon Territory Page 120.

For the meaning of Territory, see page 78.

Consult map, page 72.

**Lakes** Some of the chief are Teslin, Bennett, Labarge.

**Rivers** - There are many large rivers, as the Yukon, MacMillan and Pelly, Lewes, Teslin, etc.

**Towns**—The chief are Dawson, Selkirk, Tagish, and Caribou.

The important industry is gold mining; a considerable trade is carried on in furs.

TOPICS: Position and area, surface, climate, mining.

### North-West Territory—Page 120.

Consult map on pages 72 and 73.

**Lakes** The chief lakes of this vast region are Great Bear, Great Slave, South Indian, Minto, etc.

**Rivers**—There are a number of very large rivers. *Boundary Rivers:* Albany, East Main, and Hamilton; *Interior:* Mackenzie, Coppermine, Churchill, Nelson, and Severn.

**Bays and Gulfs**—The principal are as follows: Hudson, James, Ungava, Coronation, Mackenzie, Franklin.

**Trading Posts**—The chief are York Factory, Fort Churchill, Norway House, Fort George, Fort Chimo, Fort Resolution, Fort Providence.

TOPICS: Position and extent, industries, basin of Mackenzie, barren lands, Labrador peninsula, northern regions.

**Newfoundland—Page 121.**

Explain that Newfoundland is not a part of the Dominion of Canada. It refused to enter Confederation in 1867 and has held aloof since.

Question closely in the text.

TOPICS: Size, soil, climate, government, people, industries, agriculture, lumbering, mining, fishing, cities and towns.

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## THE UNITED STATES.

**Page 122.**

For the physical features of the United States, see the lessons on the Rocky Mountain Highland, the Appalachian Highland, and the Great Central Plain, pages 58, 59 and 63 of the New Canadian Geography.

**Drainage**—There are four river systems in the United States.

I. THE ATLANTIC SYSTEM: Connecticut, Hudson, Delaware, Susquehanna, Potomac, James, Roanoke, Savannah, Altamaha. The upper courses of these rivers have rapids and falls; the lower courses are navigable.

II. THE GULF SYSTEM: Apalachicola, Mobile, Mississippi, Brazos, Colorado, Rio Grande. The tributaries of the Mississippi from the east are the Ohio and Illinois; from the west, the Missouri, Arkansas, and Red.

III. THE PACIFIC SYSTEM: Colorado, Sacramento, and Columbia.

IV. THE CONTINENTAL SYSTEM includes the streams that discharge into the lakes of the *Great Basin*: Humboldt, Bear, Jordan.

**Lakes**—Michigan, Great Salt Lake, Utah.

**Inlets**—*East*: Cape Cod Bay, Nantucket Bay, Delaware Bay, Chesapeake Bay. *South*: Gulf of Mexico, Tampa Bay, Mobile Bay, Galveston Bay. *West*: Bay of San Francisco, Puget Sound.

**Capes**—*East:* Cod, May, Charles, Hatteras, Look-out, Fear. *South:* Sable. *West:* Prince of Wales, Flattery, Conception.

**Islands**—Long Island, Nantucket, Martha's Vineyard, Florida Keyes, San Juan, Prince of Wales.

The United States consists of 45 states, 5 territories, and the District of Columbia.

The states may be classified as follows:

I. THE NEW ENGLAND STATES—Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut. Manufacturing is the leading industry; agriculture, lumbering in Maine, and fishing are important.

II. THE MIDDLE ATLANTIC STATES—New York, Pennsylvania, New Jersey, Delaware, Maryland, Virginia, West Virginia. Agriculture is extensively followed, the climate being warm and the soil fertile. The chief industries are, however, manufactures of machinery, cotton and woollen goods, and mining.

III. SOUTHERN STATES—*Eastern Section:* North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, and Tennessee. *Western Section:* Louisiana, Texas, Arkansas, and Indian Territory and Oklahoma Territory. These states have a very warm climate and, in general, a very fertile soil. The chief industries are agricultural. Cotton is the most valuable crop. Immense quantities of rice, sugar-cane, and semi-tropical fruits are produced.

IV. CENTRAL STATES—*Eastern Section:* Ohio, Indiana, Illinois, Kentucky, Michigan, Wisconsin. *Western Section:* Missouri, Iowa, Minnesota, North Dakota, South Dakota, Nebraska, Kansas. Agriculture and stock-raising are the principal pursuits. In the south corn and tobacco are the chief crops; in the north wheat-growing is the leading industry.

V. THE WESTERN STATES—(a) *The Rocky Mountain Division:* Montana, Wyoming, Colorado, and the territory of New Mexico. Mining is the principal occupation of the people; sheep-farming and cattle-rearing are important industries. (b) *The Great Basin Division:* Idaho, Utah, Nevada, and Arizona Territory. The climate is dry; irrigation is extensively used; mining and agriculture are the chief industries. (c) *The Pacific Division:* California, Oregon, Washington, and the territory of Alaska. The climate is mild, and west of the Sierra Nevada and Cascade ranges the rainfall is ample. Lumbering, wheat-growing, fruit-raising and mining are the chief occupations.

TOPICS: Map studies, government, chief products, principal cities.

## MEXICO, CENTRAL AMERICA, AND THE WEST INDIES.

### (*a*) Mexico, Page 130.

**Physical Features**—This country is an immense tableland 6,000 to 8,000 feet high, buttressed on both sides by mountain ranges, and bordered on the east and west by a narrow strip of *low land*.

**Lakes**—Chapala and Cayaman.

**Rivers**—Mexico has no navigable rivers.

**Climate**—The low lands are hot and moist; the tableland is mild and dry; the lofty mountain lands are cold. There are two seasons, the dry and the rainy; the latter begins in June and lasts till November.

**Gulfs and Bays**—Gulf of Mexico containing Campeachy Bay, and Gulf of California.

**Capes**—Catoche and St. Lucas.

**Government**—Mexico is a federal republic like the United States, consisting of 27 states, 2 territories, and 1 federal district.

**Industries**—Mining, fruit-growing, cattle-raising, gathering dye and medicinal woods, lumbering in mahogany and other cabinet woods.

**Chief Ports**—Vera Cruz and Tampico in the Gulf of Mexico, Acapulco and Mazatalan in the Pacific.

**Chief Towns**—Mexico, the capital, Guadalaxara, Puebla, Leon.

TOPICS: People, industries, ports, capital.

### (*b*) Central America, Page 130.

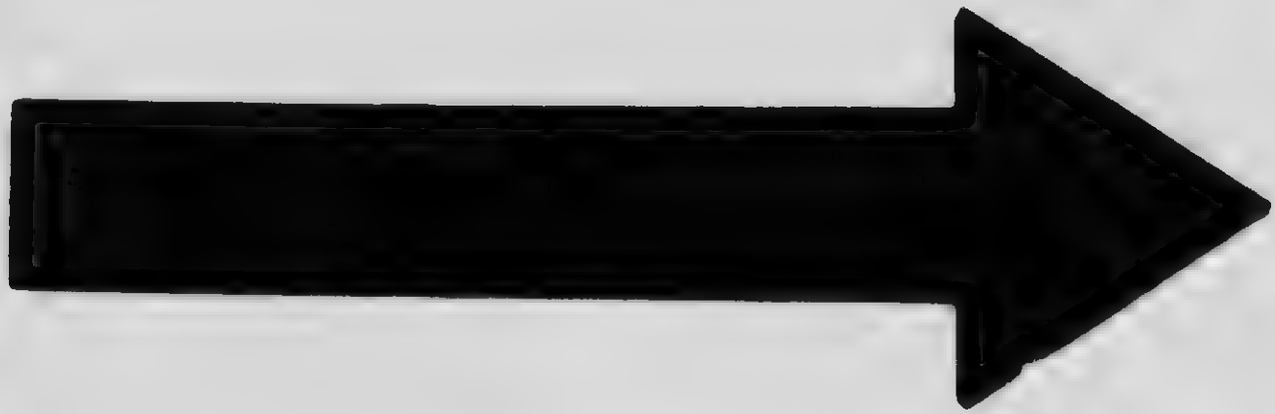
**Central America** is the narrow strip of land which lies between Mexico on the north and Panama on the south. It consists of a high fertile plateau in the interior and low plains adjoining the coast.

**Lakes**—Nicaragua and Managua.

**Rivers**—San Juan connects Lake Nicaragua and the Caribbean Sea.

**Climate**—The coasts are hot and unhealthy; the interior is temperate.

**Government**—Central America consists of five republics, one British colony, and one monarchy. The republics and their capitals are: Guatemala, capital New Guatemala; Salvador, capital San Salvador; Honduras, capital Tegucigalpa; Nicaragua, capital Managua; Costa Rica, capital San Jose. British Honduras, capital Belize, is the British colony; Mosquitia is the monarchy.



**Industries**—Farming, mining, and lumbering are the chief. Indigo, coffee, cochineal, sugar, hides, mahogany, rosewood, dye-woods are exported.

TOPICS: Government, foreign trade, British Honduras.

(*c*) **The West Indies, Page 130.**

See lesson 10, page 69 of this book.

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## SOUTH AMERICA.

### 1.—Introduction, Page 132.

Use this lesson for oral reading.

Have pupils turn to page 5, to compare the general shapes of North and of South America.

Have each place mentioned located on the map, page 137.

Compare the positions of the highlands of North and of South America.

Turn to the map of the heat belts, page 23, to discover what parts of South America are in each belt.

Turn to the map of the currents, page 19, to discover how the equatorial current of the Atlantic divides.

TOPICS: The two Americas, Isthmus of Panama, plains, highlands, heat belts, winds and rain, currents.

### 2.—Map Studies, Page 133.

See notes on lesson on map studies of North America, page 64 of this book. Train pupils to rely less on the map questions.

### 3.—The Andes Highland, Page 135.

Have the lesson read carefully. Question on each paragraph. Have pupils explain what they *see* to be the nature of the country about which they are reading. Use the maps on pages 134 and 137, constantly during the reading and subsequent discussion.

The Andean Mountain System is 4,800 miles long, and from 40 to 350 miles broad. It consists of a double and

in the north of a treble axis. In Chili there is a single ridge 30 miles broad.

The average height is 12,000 feet. Where the different ranges or their spurs approach each other there are KNOTS of very lofty plains. There are many active volcanic peaks.

TOPICS: Andes highland, slope east and west, selvas, island fringe, height of peaks (page 219), Chili, Bolivian plateau, Lake Titicaca, Peruvian Andes, Desert of Atacama, valley of Quito, volcanoes, earthquakes, Magdalena river.

### 4.—The Highland of Brazil, Page 136.

Use the relief map in studying this lesson, and proceed as in the last lesson.

The average height of the Brazilian mountains is 3,000 feet. The coast range is the highest.

TOPICS: Highland of Brazil, slopes, rivers, harbors, campos, plants.

### 5.—The Guiana Highland, Page 138.

Proceed as in the last lesson.

The average elevation of the plateau out which the Parime mountains rise is 2,000 feet. The average height of the mountains is 4,000 feet.

TOPICS: Highland of Guiana, rains on, coastal plain, southern slope.

### 6.—The Selvas, Page 138.

Trace the basin of the Amazon on the relief map, page 134. Model this basin in sand or clay. Sketch South America, and trace this basin. After reading a description of some part, have pupils tell in their own words what they see in imagination.

The selvas is the greatest forest in the world. It is 1,200 miles from east to west, and 800 miles from north

to south. The forest is impenetrable, and can be explored only along the waterways of the Amazon and its tributaries.

TOPICS: Amazon basin, Amazon river, tributaries, selvas, Indians, rubber trees, rosewood and mahogany.

### 7.—The Valley of the La Plata, Page 140.

Trace this valley on the relief map, page 134.

Model it in sand or clay. Sketch a map of S. America, and trace this valley.

TOPICS: Valley of La Plata, position, size, pampas, Gran Chaco, grain and cattle.

### 8.—The Llanos, Page 140.

Trace the valley of the Orinoco on the relief map, page 134.

Model this basin in clay or sand.

Sketch a map of South America, showing its position.

Have pupils describe the effects of the rainy season, of the dry season, etc.

TOPICS: Basin of Orinoco, young coastal plain, llanos, rainy season, dry season, river divides.

Additional facts:

**Coast**—South America is regular in form; the coast line is only about 15,500 miles long.

**Inlets**—The most important are the mouths of the Amazon and La Plata rivers. *North:* Gulfs of Darien, Venezuela, and Paria. *East:* Bays of Bahia, Rio Janeiro, Gulf of St. George. *West:* Gulfs of Panama and Guayaquil.

**Straits**—Magellan, between Tierra del Fuego and the mainlan e Marie, between Tierra del Fuego and Staten Islands.

**Capes**—Gallinas, St. Roque, Horn, Point Parina.

**Isthmus**—Panama, thirty miles wide, through which a ship canal is being pierced.

**Islands**—*On the north:* Margarita, Curacao, etc. *On the east:* Marajo in the Amazon, the Falkland Isles, and South Georgia. *On the south:* The Tierra del Fuegan group. *On the west:* Patagonian Archi-

pelago, numerous rocky islands west of the Patagonian peninsula. Juan Fernandez, Chincha Islands, noted for deposits of guano. Galapagos, a volcanic group.

**Lakes** Maracaybo, a lagoon in Venezuela; Titicaca, 12,000 feet above sea-level and nearly as large as Lake Ontario.

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## 9.—COUNTRIES OF SOUTH AMERICA.

### (*a*) Brazil, Page 141.

Sketch South America, and trace Brazil upon it.

Mark the position of the important mountains, the basin of the Amazon, the cities of Rio Janeiro, Bahia, Pernambuco, and Para.

For the area and population, see page 218.

This republic consists of twenty states and the federal district of Rio Janeiro and its environs. Every country in South America borders on it except Chili. It has about 14,000 miles of railway; the most important lines run from Pernambuco around to Bahia; from Rio Janeiro to San Salvador; and from Rio Janeiro to St. Paulo.

TOPICS: Size, silvas, productions, Rio Janeiro, Bahia, Pernambuco, Para, exports.

### (*b*) Argentina, Page 141.

Sketch South America, and trace Argentina upon it. Mark the position of the important rivers, and the cities Buenos Ayres, Cordova, Rosario, and La Plata.

Argentina (Land of Silver) is a republic consisting of fourteen provinces and nine territories. Spanish is the official language. In 1881 Argentina and Chili divided Patagonia and the Islands of Tierra del Fuego between them. There are many large and important rivers, as the Paraguay, Parana, Uruguay, feeders of the Plate, Vermijo, Colorado, Negro, etc. In the production of wool Argentina ranks next to Australia. Agriculture is now receiving great attention and Argentina is becoming a great wheat-exporting country. Manufactures are yet in their infancy. There are about 11,000 miles of railway connecting Buenos Ayres with the other chief places of the republic.

TOPICS: Surface, occupations, cities.

### (*c*) Uruguay, Page 141.

Sketch Uruguay upon the outline map of South America. Note the countries bordering on it.

In this republic the chief industry is rearing sheep, horses and cattle. Attention is being given to wheat-raising since the introduction of wire fencing.

TOPICS: Size, surface, occupations, capital.

### (*d*) Paraguay, Page 141.

Sketch Paraguay upon the outline map of South America. Note the boundary rivers.

This is the "Mesopotamia" of South America. This and Bolivia are the only countries of South America without a sea-board. The country is well watered. The climate is healthy. The soil is very fertile. The forests yield dye-woods, gums, india-rubber, and the leaves of a holly called Paraguay tea, as well as hard-wood; the soil produces rice, wheat, cotton and sugar-cane.

TOPICS: Products, capital.

### (*e*) Chile, Page 142.

Outline Chile upon the sketch map of South America. Study the boundaries.

This republic is 2,800 miles long and about 100 miles wide. It is the most enterprising and progressive of South American republics. In the north the chief product is nitre; in the centre, copper and silver; and in the south, coal and iron. The staple export is nitre, the next copper. The desert province of *Atacama* is one vast mine. In Santiago most of the houses are of one storey, as a precaution against frequent earthquakes.

TOPICS: Shape, surface, minerals, cities.

### (*f*) Bolivia, Page 142.

Outline Bolivia upon the sketch map of South America. Study the boundaries.

Some of the highest portions of the Andes are in the western part of Bolivia. The eastern part is well watered by the Madeira and its tributaries. This river is navigable for 3,000 miles in Bolivia. Lake Titicaca, 12,540 feet above sea-level and the loftiest body of water in the world, is partly in Bolivia. The climate varies between all degrees

of heat and cold, hence the agricultural productions are various, consisting of rice, coffee, cotton, indigo, etc. The chief industries are agriculture and mining.

TOPICS: Surface, mines, productions, seaports, cities.

(*g*) **Peru, Page 140.**

Have pupils sketch Peru on the outline map of South America.

Have the pupils state the boundaries.

Peru has three well marked regions: (1) The rainless strip on the Pacific coast fertile when irrigated; (2) the tableland of the Andes; (3) the elevated region east of the Andes, embracing the well-watered upper basin of the Amazon and the whole of the basin of the Ucayalé. Silver, nitre, and guano are important exports. Sheep and alpacas supply wool. The cinchona-tree, from the bark of which quinine is got, and sugar-cane are extensively cultivated. The chief towns are: Lima with houses one storey high. Callao with the safest harbor on the west coast. Arequipa, in the Andes, 8,000 feet above the sea-level. Cuzco, the capital of the Incas, 11,400 feet above the sea-level.

TOPICS: Products, imports, cities.

(*h*) **Ecuador, Page 142.**

Have Ecuador sketched on the outline map.

Question pupils closely on its position and boundaries.

Ecuador, Spanish for equator, is crossed by three ranges of the Andes. The tablelands between these are fertile and have a temperate climate. The plains both east and west are hot and moist. The chief industries are mining and agriculture. Gold, quicksilver, lead, and copper are found Cocoa is the most valuable export, being equal to all the others combined. This republic consists of sixteen provinces and one territory. The Galapagos Islands belong to Ecuador. *Cities:* Quito, the capital, 9,500 feet above the sea-level, is composed of low houses with no visible chimneys. Guayaquil is the chief port of the republic.

TOPICS: Surface, climate, productions, cities.

(*i*) **Colombia, Page 142.**

Have pupils sketch Colombia on the outline map.

Have the boundaries studied.

The United States of Colombia is traversed by three ranges of Andes, and hence the country consists largely of cool and healthy tablelands. The coast regions are low, hot, and sickly; they are covered with dense forests of mahogany, cedar, etc. The country is well watered by the Magdalena and by tributaries of the Amazon and Orinoco. The chief industries are agriculture and mining. The precious metals and ores of iron, copper, and lead are found. The chief places are Bogota, the capital, and Barranquilla on the Magdalena, the chief commercial centre of the republic.

TOPICS: Exports, capital.

(*j*) **Panama, Page 142.**

A republican form of government was established in 1904. Panama ceded to the United States a zone five miles wide on each side of the canal route for $10,000,000, and an annual payment of $250,000 after nine years. The state is 480 miles long, by between 37 and 110 miles wide. It contains 31,570 square miles. The chief towns are Panama, the capital, and Colon. These are connected by a railway 47 miles long.

(*k*) **Venezuela, Page 142.**

Have pupils sketch Venezuela on the outline map.

Question closely regarding the boundaries.

The Andes cross the north-western part of Venezuela. The Parime mountains form the boundary in the south-east. This immense triangular territory is drained by the Orinoco. There is no watershed between the Orinoco river and the Rio Negro. There are a number of streams which unite these two rivers. Farming, including the raising of coffee, sugar-cane, Indian corn and cocoa, and the feeding of cattle, sheep, and horses, is the chief industry. There are rich gold fields and extensive deposits of copper. Caracas, the capital, is twelve miles inland, on a plateau 3,000 feet high. Its port is La Guayra. Maracaybo is on the lake of the same name.

TOPICS: Exports, cities.

(*l*) **Guiana, Page 142.**

The coast district is a low and very fertile plain. The interior rises by a series of terraces into the Parime mountains. It is well drained by many fine streams, all flowing northward. The climate is tropical but not unhealthy. Agriculture is carried on along the coast and the river banks. Sugar-cane, coffee, rice, cotton, tobacco, and spices are grown.

TOPICS: Productions, divisions, capitals.

## EUROPE.

### 1.—Introduction, Page 143.

Use this lesson for oral reading, and have the pupils state in a general way the substance of the reading.

Have the maps on pages 23 and 24 consulted for the position of Europe in the heat belts; also those on pages 15 and 19 for the direction of the prevailing winds.

Have an outline of Europe sketched by the pupils.

Topics: Size, general surface, coastline, heat belts, winds and rain, climate.

### 2. -Map Studies, Page 143.

Read the general directions for map studies on page 64 of this book.

Consult the maps on pages 4, 144, 145 and 159.

Have the boundaries mastered from studying the maps on pages 144, 145 and 159.

Additional information:

Europe has the most irregular outline of any of the continents. Long peninsulas run out into the sea and long arms of the sea extend into the land. Thus every part of it is within easy communication with the sea, no place being more than 400 miles from the sea, except in Russia. The estimated coast line is 19,500 miles.

**Extent**—Europe is 3,400 miles long from the Urals to Cape St. Vincent and 2,400 miles wide from Cape Matapan to North Cape.

**Inland Seas**—Europe is the continent of inland seas and deep gulfs. At the south are the Caspian, Black, Azov, Marmora, and Mediterranean with its branches. At the north and west are the White, Baltic, North, Irish, Zuyder Zee. The *Caspian* is shallow at the north, deep at the south. It is now 83 feet below the surface of the Black Sea. The *Black* receives the drainage of one-third of Europe. Its branch, the sea of *Azov*, is shallow and is slowly silting up. The *Mediterranean* is 2,400 miles long and its width varies from 80 to 1,000 miles. Its branches are the *Ægean*, *Ionian*, *Adriatic*, and *Tyrrhenian* seas. The *White Sea* is frozen half the year. The *Baltic* is shallow, the average depth being less than 50 feet. Its waters are much fresher than those of the ocean. The *North Sea* or *German Ocean* is a shallow sea between Great Britain

and the continent. It has many fine fishing banks. The *Zuyder Zee* was formed by an irruption of the sea in the 13th century.

**Bay and Gulfs**—*On the south:* The Gulfs of Lions, Genoa, Naples, Taranto, etc. The Gulf of Lions gets its name from its stormy character. It has nothing to do with Lyons. *On the west:* Bay of Biscay, Gulfs of Bothnia, Finland, and Riga, Arms of the Baltic.

**Straits and Channels**—*On the south:* Strait of Gibraltar, eight miles wide; Messina, which separates Italy from Sicily; Bonifaccio, between Corsica and Sardinia; Dardanelles, one mile wide; Bosphorus, scarcely half-a-mile wide in its narrowest part; Kertch or Yenikale, four miles wide. *On the west:* The Skager-rack and the Cattegat, 70 miles wide; the Sound, three miles wide; the Great Belt, 12 to 24 miles across; the Little Belt, three-quarters of a mile wide; Dover, 21 miles across.

**Capes**—*In Norway:* Nordkyn, North, the Naze. *In Denmark:* The Skaw. *In North-west Spain:* Ortegal and Finisterre. *In Portugal:* Roca and St. Vincent. *In Southern Spain:* Trafalgar and Tarifa. *In Italy:* Spartivento. *In Greece:* Matapan. On the continent the most northerly point is Cape Nordkyn; the most westerly, Cape Roca; and the most southerly, Cape Tarifa.

**Peninsulas**—The Scandinavian peninsula; Jutland, which forms part of Denmark; Iberian peninsula, consisting of Spain and Portugal; Italy; Morea, which is a part of Greece; Crimea, a part of Russia. Notice that the peninsulas of the world are generally directed to the south; Jutland and Yucatan are the chief exceptions.

**Isthmuses**—The most important are Corinth and Perekop. Corinth joins the Morea to the mainland, and Perekop joins the Crimea to the mainland of Russia.

**Islands**—*In the Arctic Ocean:* Archipelago of Nova Zembla. *In the Atlantic:* Lofoden, Iceland, Faroe Islands, British Islands, Channel Islands, and the Azores. *In the Baltic:* The Danish Archipelago, Bornholm, Gothland, Dago, Oesel, Aland group. *In the Mediterranean:* Balearic Islands, Corsica, Sardinia, Sicily, Malta, Ionian, Cyclades, Sporades, Candia. Sicily is the largest and Sardinia the next.

**Rivers**—The great water-parting runs from north-east to south-west. It begins at the Urals, passes through the Valdai plateau, along the crest of the Alps, till it reaches the Pyrenees. The north-western slope is not so wide as the south-eastern one. *Flowing into Arctic Ocean:* Petchora; *White Sea:* Dwina and Onega; *Baltic Sea:*

Neva, Dvina, Niemen, Vistula, Oder; *North Sea:* Elbe, Weser, Rhine, Meuse, Scheldt, Thames, etc.; *English Channel:* Seine; *Bay of Biscay:* Loire and Gironde; *Atlantic Ocean:* Douro, Tagus, Guadiana, Guadalquiver; *Mediterranean:* Ebro, Rhone, Po, Tiber; *Black Sea:* Danube, Dniester, Dnieper; *Sea of Azov:* Don; *Caspian Sea:* Volga and Ural. The Volga is the longest river in Europe; the Danube discharges the most water. The most important for inland water communication are the Danube and the Rhine.

**Lakes.**—The lakes of Europe fall into three main groups: The *Scandinavian*, the *Russian*, and the *Alpine*. *The Scandinavian* lakes occur in thousands in Sweden; the largest are Wener, Wetter, Maelar. Norway has also many small lakes. *The Russian lakes* lie mainly between the White Sea and the Gulf of Finland—a region "Strewn broadcast with lakes"; the principal are Ladoga, Onega, Saima, etc. *The Alpine lakes* lie in valleys in the central mountain mass. The most important are Geneva, connected with the Rhone; Constance, Neuchatel, Lucerne, etc., connected with the Rhine; Garda, Maggiore, Como, etc., connected with the Po.

**The People.**—The people belong chiefly of the Caucasian race, which is represented by four main families: The Celtic, Teutonic, Romanic and Slavonic. *The Celtic race* occupies Ireland, Wales, Highlands of Scotland, and Brittany in France. *The Teutonic race* forms the predominating people in Germany, Norway, Sweden, Denmark, Holland, Belgium, and Great Britain. *The Romanic race* occupies Spain, Portugal, France, Italy, Greece, Roumania. *The Slavonic race* occupies Russia, Servia, Bulgaria.

**Religion**—Protestantism prevails in Teutonic countries; Roman Catholicism in Romanic countries, Greece excepted; and the Greek Church in the Slavonic countries and Greece. The Turks are Mohammedans.

**Education**—The average number unable to read and write is estimated as follows: Great Britain, 20 per cent.; France, 35; Italy, 64; Hungary, 85; and Russia, 88.

### 3.—The British Isles, Page 145.

Have the introduction read orally; question closely on the different topics; have the islands carefully located on the map.

TOPICS: The British Isles, climate, government, parliament, laws, cabinet.

(a) **England and Wales, Page 146.**

In the map studies have the pupils discover the answers; do not attempt to have these answers memorized yet. In studying the surface, see text, page 148; locate each place mentioned, and sketch it in the outline map.

Trace each river from its source to its mouth, and mark it in on the outline map.

Locate the lakes, and sketch them in on the outline map.

Locate the industrial centres mentioned in the text, and mark them on the outline map.

Locate the counties of England and Wales, and sketch them in the outline map.

TOPICS: Map studies, surface, rivers, lakes, coast features, industries, commerce, seaports, towns, counties.

(b) **Scotland, Page 152.**

Proceed with the study of Scotland in a similar way to that of England.

TOPICS: Map studies, surface, river systems, lakes, coast features, industries, commerce, towns, counties.

(c) **Ireland, Page 155.**

Proceed with the study of Ireland in a similar way to that of England and Scotland.

TOPICS: Map studies, surface, river systems, coast features, industries, commerce, chief towns, provinces and counties.

**4.—Region of the Alps, Page 160.**

Notice the position of the Alps in the world's ridge, page 4, and observe this mountain system on the relief map, page 144. Have Europe sketched, and mark in the mountains here described.

Explain that the part of the world's ridge within Europe falls naturally into two sections, the Alpine system and the Iberian system.

The Alpine System embraces the Alps proper and the outlying French and German highlands, together with the Carpathians and Balkans to the east, and the Apennines to the south. The Alps proper are 600 miles long from east to west, and from 90 to 160 miles broad from north to south. The highest peak is Mount Blanc, in France, 15,780 feet high. The Iberian System includes the ranges which traverse or buttress the central plateau of the Spanish peninsula together with the Pyrenees.

TOPICS: Alps, tunnels, occupations of Swiss, water power, Apennines, Cevennes, Jura, Rhone, northern border of Swiss plateau.

### 5.—The Spanish Peninsula, Page 162.

Observe the position of the Iberian system in the world's ridge, page 4, and notice it carefully on the relief map, page 144. Mark these mountains on the outline map.

Explain that the mountains of this system are the following: (1) the Pyrenees, including the Cantabrian mountains; (2) Sierra Nevada; (3) Sierra Morena, and (4) Sierra Toledo, running parallel to one another.

TOPICS: Position, Pyrenees, Spanish plateau, climate, Ebro, Guadalquiver, productions, Gibraltar.

### 6.—The Po and the Apennines, Page 162.

Have the relief map constantly before the pupils.

Sketch the Apennines and the valley of the Po on the outline map.

Question closely on the text.

Explain how the Alps are being worn down and carried by the Po and tributaries into the Adriatic; that the Po is also filling up its channel, so that it is necessary to build dykes to confine the waters.

The Apennines have an average elevation of from 3,000 to 5,000 feet.

TOPICS: Po valley, Alpine lakes, flood plains, lagoons, Venice, Apennines, coastal plains, productions, Pisa.

### 7.—The Balkan Peninsula, Page 163.

Fix the position of the Balkan range on the map of the world's ridge, and notice it on the relief map, page 144.

Mark each place mentioned on the outline map.

Explain that the Corinthian Canal was completed in 1893. It is four miles long, 26¼ feet deep, and 72 feet wide at the bottom. It cost $5,000,000; 175 miles is saved in a voyage from Italy to Odessa.

TOPICS: Position, Balkan range, surface of Balkan peninsula, Turkey, Pindus mountains, Marathon, Isthmus of Corinth, Parthenon.

**8.—The Plain of Hungary, Page 164.**

Have the Carpathian mountains sketched on the outline map.

Draw the Danube river. Point out its basin. Observe the relief map.

Explain that the Danube leaves the plain of Hungary where the enclosing ranges on the eastern side of the old lake are lowest. The river has cut a deep gorge across the range, which is known as the *Iron Gate*. The river flows rapidly over a rocky bed. A canal overcomes the rapids. The Danube is building a great delta through which a ship canal is with difficulty kept open.

TOPICS: Plain of Hungary, Danube, Austria-Hungary, exports, Vienna.

**9.—The Scandinavian Peninsula, Page 164.**

Study the relief map of Europe carefully.

Have this peninsula traced on the outline map.

Turn to the map of the heat belts (pages 23 and 24) to discover in what belt this peninsula is to be found.

Scandinavia is 1,150 miles long and from 300 to 450 miles wide.

TOPICS: Size, surface, fishing fields, Lofoden islands, eastern slope, climate, North Cape, Norway and Sweden, Lapps, exports, cities, Denmark, Iceland, Mount Hecla.

**10.—Low Europe, Western Part, Page 166.**

Have each part mentioned traced carefully on the relief map of Europe, and sketched on the outline map.

TOPICS: Lowland of France, Landes, Central France, southern shore of North Sea, Holland, Belgium, Rhine, Waterloo, coastal plains on North and Baltic seas, rivers of

western Low Europe, climate, products, people, centres of trade.

II.—**Countries of Low Europe—Western Part, Page 168.**

(*a*) **The German Empire, Page 168.**

Have the map in constant use. On the outline map mark the position of each place.

Question the pupils closely.

TOPICS: German Empire, natural products, manufactures, commercial importance, Berlin, Leipsic, Munich, Dresden, Hamburg, Dantzic, Breslau, Cologne.

(*b*) **France, Page 169.**

See remarks under the German Empire, above.

TOPICS: Position of France, occupations of the people, commerce, internal communication, Paris, Havre, Lyons, Marseilles, Bordeaux, Lille, Toulouse.

(*c*) **Belgium, Page 170.**

See remarks under the German Empire, above.

Belgium is generally a flat, well-watered country. In the south-eastern part the country is hilly and includes the well-wooded Ardennes hills. The "lazy Scheldt" and the "winding Meuse" run through Belgium from France. Canals radiating from Ghent supply Belgium with waterways.

The whole country is most carefully cultivated and although naturally sandy is very productive.

Agriculture, mining, and manufacturing are the chief occupations. Rye, wheat, oats, sugar-beets, flax, and hemp are largely cultivated. Coal, iron, and zinc are the chief minerals.

Lace, linen, cottons, woollens are the chief manufactures.

Roman Catholicism is the prevailing religion. Great attention is now being given to elementary education. There is no Belgian language. Two are spoken, Flemish and Walloon, a kind of old French. The Flemings belong to the Teutonic race. The Walloons are of the Celtic race.

BRUSSELS is the capital and the centre of the Belgian railway system.

GHENT is a great canal port, and is the Manchester of Belgium. It is built on thirty islands.

TOPICS: Natural advantages, manufactures, Brussels, Antwerp, Liege.

(*d*) **Holland, Page 170.**

See remarks under the German Empire, page 99.

Holland is a flat country, not even having a hill. Large parts are naturally marshy. The sea is kept out by dykes 30 feet high and from 70 to 300 feet wide.

The Rhine, Maas and Scheldt are the chief rivers. Canals are everywhere. There are nearly 5,000 miles of waterways in the country. The largest canals are the North Holland Canal, 21 feet deep, and the North Sea Canal, 23 feet deep.

The climate is mild, resembling that of England. The chief industry is agriculture; most of the land is devoted to grazing. There are immense herds of cattle and horses. Great quantities of butter and cheese are produced. The culture of flowers has attained great perfection. Bulbs, as the tulip, hyacinth, and lily, are grown in immense quantities for export.

The important manufactures are those of cotton, linen and woollen goods.

The people belong to the Teutonic race.

The Dutch have many colonies: (1) East Indies, comprising Java, parts of Sumatra, Celebes, New Guinea and Borneo, the Moluccas Islands, etc.; (2) Dutch Guiana; (3) Dutch West Indies, consisting of Curacoa, etc.

AMSTERDAM is the commercial capital; Hague is the political capital.

DELFT was at one time famous for its manufacture of pottery and porcelain.

TOPICS: Occupations of the people, colonies, cities.

(*e*) **Denmark, Page 170.**

See remarks under the German Empire, page 99.

Denmark consists of a small peninsula and an archipelago of islands. The surface is low and generally flat. The coast is low and has to be protected in many places by dykes.

**Climate**—The climate is insular and mild.

**Soil**—The soil is sandy, but careful cultivation has made it very productive.

**Industries**—There is much fine pasture, hence dairy-farming is common. The Danes produce fine butter and cheese, and rear many sheep, cattle and horses.

**Exports**—The chief exports are butter, hams, grain, eggs and hides.

**Race**—The Danes belong to the Scandinavian branch of the Teutonic family.

**Religion**—The people belong to the Lutheran Church.

**Education**—Education is common. Those who can neither read nor write are less than three in 1,000.

**Colonies**—The foreign possessions are (1) Iceland, remarkable for its volcanoes; (2) the Faroe Islands; (3) Greenland; and (4) some small island in the West Indies.

TOPICS: Products, capital.

### 12.—Low Europe—Eastern Part, Page 170.

Have each part mentioned carefully traced on the relief map of Europe, and sketched on the outline map.

TOPICS: Position of Russian plain, size, petroleum field, tundras, forest belt, Finland, fertile plains, Volga.

### 13.—Mediterranean Countries, Page 171.

#### (*a*) Spain, Page 171.

Have the map of Europe and that on page 167 in constant use.

Sketch in each country as studied on the outline map.

Question closely on the text.

Supply additional information.

Spain consists of a great tableland 2,500 feet high, buttressed on the north and south by high ranges and crossed from east to west by lower ranges of mountains. There is a narrow strip of low land along the coasts.

**Coast**—The coast line is regular. There are few indentations and none of any great size.

**Climate**—In the north the climate is temperate; in the interior it is subject to great extremes of heat and cold; in the south and south-east it is hot. In many parts the rainfall is small.

**Rivers**—The five rivers of Spain are the Ebro, the Douro, the Tagus, the Guadiana, and the Guadalquivir.

**Industries**—The most important is agriculture; nearly three-fourths of the people are engaged in this occupation. Spain has also rich mines.

**Exports**—Among the chief exports are wine and fruit, copper, iron, lead, quicksilver, cork, etc.

**Race**—The Spaniards are a mixed people, formed by the intermingling of the peoples that at one time or another were dominant in the country.

**Religion**—The people are Roman Catholics.

**Education**—Only about 25% of the people can read and write.

**Colonies**—Spain has lost Cuba, Puerto Rico, Philippine and Sulu Islands; and has sold the Marianne, Caroline, and Pelew groups to Germany. The chief Spanish possessions are now the Canary Islands, Fernand Po, Corisco and some settlements on the Lower Guinea coast, and the Balearic Islands.

MADRID is situated in a plateau 2,400 feet high and is surrounded by a wall 12 miles long.

SEVILLE is noted for its trade in oranges and its tobacco factories.

BARCELONA is described as the Liverpool and Manchester of Spain.

TOPICS: Soil of Spain, productions, cities.

### (*b*) Portugal, Page 171.

See remarks under Spain, page 101.

This country consists of the Atlantic slopes of the great Peninsular tableland.

**Coast**—The coast is unbroken, except for the bays of Lisbon and Setubal, and is deficient in good harbors.

**Climate**—The climate is warm, equable and moist. The westerly winds leave almost all their moisture in Portugal and pass into the interior as dry winds.

**Soil**—In the valleys the soil is fertile.

**Industries**—The chief industry is agriculture. Wine, Indian corn, and wheat are largely produced. There are great forests of oak, chestnut and cork trees.

**Exports**—Wine comes first, then cork, oranges, onions, figs.

**Race**—The Portuguese are a mixed race. Their language resembles that of the Spaniards.

**Religion**—The Portuguese are Roman Catholics.

**Education**—Less than 20 per cent. of the people can read and write.

**Foreign Possessions**—The chief possessions outside the mainland are the following: Azores; Madeira; Cape Verde Islands; St.

Thomas's Island in the Gulf of Guinea; part of West Africa, from the Congo to the Cunene rivers; part of East Africa, from Cape Delgado to the Limpopo river; Goa, on the west coast of India; and Macao in China.

TOPICS: Climate, soil, exports, cities.

(c) **Italy, Page 171.**

See remarks under Spain, page 101.

Italy is naturally divided into three parts, *Continental*, *Peninsular*, and *Insular* Italy. Continental consists of a level and fertile plain, the plain of Lombardy; Peninsular Italy is a mountainous plateau almost filled by the Apennines. Insular Italy is composed of Sicily and Sardinia, both of them chiefly mountainous tablelands.

**Coast**—The coast is extensive and contains many fine harbors. No part, except in the extreme north, is more than seventy miles from the sea

**Rivers**—Italy has one great river, the Po. The others are small and of little use either for navigation or irrigation.

**Lakes**—The lakes of continental Italy are Garda, Maggiore and Como.

**Climate**—The climate is warm, but dry and healthy.

**Industries**—Italy is an agricultural country. About one half the people depend upon this industry. The vine, olive and mulberry are cultivated; wheat maize, rice, oil, wine are extensively produced. Silk is the most important manufacture.

**Exports**—Raw silk, silk manufactures, olive oil, wines, fruits, et. Sulphur and iron ores are also important exports.

**Race**—The Italians are a mixed race, formed by the mingling of Romans and Italians with Germans, Greeks, French, Saracens, Spaniards, etc They are classed with the Graeco-Latin family of the Caucasian race.

**Religion**—The people in general are Roman Catholic.

**Education**—Elementary education is now receiving much attention.

**Foreign Possessions**—Italy has taken possession of *Assab*, opposite to Aden, in Africa, and *Massowah*, in the Red Sea.

ROME, the capital, is renowned for its paintings, sculpture and architecture; it is also celebrated for the church of St. Peter, the largest in the world

GENOA is the Liverpool of Italy.

TURIN is the great railway centre of north-western Italy and communicates with France through the *Mount Cenis Tunnel.* It has important manufactures of silk, woollen, and cotton goods.

MILAN has a magnificent cathedral of white marble It i. the chief centre of the silk manufacture of northern Italy.

VENICE is built in lagoons at the head of the Adriatic. The streets are canals; there are no horses or carriages in the city; the manufactures consist of works of taste made of glass, glass beads and lace goods.

FLORENCE is renowned for its galleries of paintings and sculpture, and museums of art.

NAPLES is the second port of Italy. It exports southern fruit, sulphur, and wine.

TOPICS: Valley of Po, productions, exports, imports, cities.

### (*d*) Turkey, Page 172.

See remarks on teaching Spain, page 101.

The Ottoman Empire includes parts of Europe, Asia, and Africa. In Europe Turkey proper is a strip between the Adriatic and Black seas and between the Balkan mountains and the Ægean and Marmora seas.

In Asia the empire includes Asia Minor, Armenia and Ku distan, Mesapotamia, Syria, and Arabia; in Africa Tripoli and Benghazi.

**Climate**—The elevated districts of Turkey in Europe are subject to great extremes—tropical summers and Arctic winters.

**Soil**—The soil is fertile but poorly cultivated.

**Industries**—About three-fourths of the people are engaged in agriculture. These grow little for export, merely what they need. The Turks have no manufacturing energy, and exhibit no trading spirit. Trade is mainly in the hands of Greek merchants. The roads are poor, and there are only about 1,300 miles of railroad.

**Exports**—Raisins, figs, silk, olive oil, sponges, attar of roses.

**Race**—The Turks belong to the Tartar family of the Mongolian race.

**Religion**—The Turks are Mahommedans. The Sultan of Turkey is the head of this relig' on.

**Educatica**—The Turks are the least educated people in Europe.

**Cities**—*Constantinople* is one of the great cities of the earth. It stands at the intersection of two great highways of commerce, the waterway from the Black Sea to the Mediterranean and the land high road from Asia into Europe. Its harbor, the Golden Horn, is one of the great harbors of the world. *Saloniki* is the second seaport. *Adrianople*, on the Maritza, is noted for its silk and leather manufactures.

TOPICS: Surface, people, Constantinople, Sultan.

### (e) Greece, Page 172.

See remarks on teaching, Spain, page 101.

Greece embraces a small part of the continent, the peninsula named the Morea, with the Ionian Islands on the west and the Ægean Islands on the east. Every part of the country is mountainous, and the streams are mere torrents.

**Coast**—Its coast is very irregular.

**Climate**—The climate is warm and delightful.

**Industries**—The people are mostly agriculturists; currants and olives are the chief sources of wealth. Fine marble is abundant.

**Exports**—Currants and other dried fruits, olive-oil, figs, wine, honey, sponges, and lead.

**Religion**—The Greek Church claims most of the people.

**Education**—One-half the men and three-fourths of the women can neither read nor write. Education is, however, making rapid progress.

**Cities**—*Athens:* Piræus is the port of Athens connected to it by railway. It has cotton factories, machine works, rope works, etc.

TOPICS: Past greatness, climate, soil, products, cities.

## 14.—Other Countries of Europe.

### (a) Switzerland, Page 172.

See remarks on teaching, Spain, page 101.

Switzerland is a federal republic like the United States. It is the most mountainous country of Europe. It is two-thirds mountains and one-third elevated plain. There

are many beautiful lakes, rapid rivers, high waterfalls, deep valleys, and immense glaciers in Switzerland.

**Industries**—There is no coal or iron in the country. Its largest manufacture is silk, then cotton, then watches. There are fine roads and an excellent system of railways. Three tunnels pierce the Alps from Switzerland; the St. Gothard connects Switzerland and Northern Italy. The Arlberg Tunnel enables easy communication with Austria; the Simplon connects it with Italy.

**People**—The people are chiefly German and French. They are highly educated, and few cannot read and write.

**Cities**—*Berne* is the capital. *Geneva* is the gateway of Southern Switzerland towards France. The roads which connect Austria with the south of France converge here. *Basle* is a busy city. The railways from Germany and France enter Switzerland through Basle. *Zurich* manufactures silks and cottons.

TOPICS: Productions, manufactures, cities.

### (*b*) Austria-Hungary, Page 173.

See remarks on teaching, Spain, page 101.

This empire consists of the Austrian Empire and the Kingdom of Hungary. It is a land of endless variety of mountain and plain, and of many different peoples and nationalities.

**Surface**—In the north-west are the Bohemian mountains; in the north-east, the Carpathian; and in the west, the eastern portions of the Alps. Between the Carpathian mountains and the eastern spurs of the Alps, lies the *great plain* of Hungary.

**Rivers**—The Danube is the great commercial highway.

**Climate**—The climate is continental, but is on the whole dry, healthy and temperate.

**Industries**—Three-fifths of the people are engaged in agriculture. Rye, barley, oats, wheat are grown extensively. Coal is found in Bohemia; salt, in Cracow, the galleries of the mines being now more than 50 miles long.

**Ports**—Trieste and Fiume are the chief ports. There are about 500 miles of sea-coast on the Adriatic.

**Roads**—There are excellent highways and 23,000 miles of railroad.

**Language**—There are more than 20 different languages spoken in the empire.

**Religion**—The state religion is Roman Catholic, but all religions are tolerated.

**Cities**—*Vienna*, *Budapest*. *Prague*, the capital of Bohemia, is a great trade centre, and has many mediæval towers and spires. *Innsbruck*, an important trading centre, is a natural focus for roads and railroads from Vienna, Munich, Switzerland, Northern Italy and Trieste.

Topics: Productions, cities.

### (c) Russia, Page 173.

See remarks on teaching, Spain, page 101.

Russia occupies nearly one-half of Europe and one-third of Asia. European Russia is a vast plain. The central tableland called the Valdai Hills is 1,100 feet high. In the north are the low marshes called tundras, where nothing grows but reindeer moss, lichens, and stunted shrubs. South of the tundras is a forest belt of pine, birch, maple and oak. Between the Carpathians and the Urals are the "BLACK LANDS," comprising one-third of the country. The soil is a kind of leafy-mold, varying from 3 to 20 feet in depth. Crop after crop of wheat grows on this land. In the south-east are the vast treeless plains called the steppes.

**Climate**—The climate is continental, and is marked by hot summers and cold winters.

**Industries**—Ninety per cent. of the people are engaged in agriculture. The chief products are wheat, maize, oats and rye.

**Communications**—There are no roads deserving the name. In the Black Lands there is no stone. There are 76,000 miles of navigable waterways and 32,000 miles of railways.

**Race**—The Russians are Slavs.

**Religion**—They belong to the Greek Church.

**Education**—Only about 12 out of over 100 can read and write.

**Cities**—*St. Petersburg*, *Moscow*, *Odessa*, *Riga*. *Warsaw*, the capital of Poland, is near the centre of Europe. *Nijni-Novgorod*, on the Volga,

is a great *fur* market, and has the largest fair in Europe; this lasts from July to September. *Astrakan* is an important port on the Caspian.

TOPICS: Size, surface, climate, productions, cities.

### (*d*) Norway and Sweden, Page 173.

See remarks on teaching, Spain, page 101.

An immense tableland traverses the Scandinavian Peninsula from south to north. It is from 1,000 to 4,000 feet high. The steep slope is on the Atlantic side. This side is fringed by innumerable islands called *skerries*. Boats sail between them and the mainland, thus escaping the swell of the Atlantic.

**Industries**—The wealth of Norway consists in the fisheries, cattle, and pine forests. In Sweden, the industries are chiefly connected with forestry in the north, mining in the centre, and agriculture in the south. Scandinavia is rich in iron and copper.

**Race**—The people are chiefly of the Teutonic race.

**Education**—Education is free and compulsory. The schools are excellent.

**Religion**—The people are in general Lutherans.

**Cities**—*Christiania*, *Stockholm*, *Bergen*, *Gothenburg*.

TOPICS: Norway and Sweden, climate, exports, cities.

### (*e*) Rumania.

The kingdom of Rumania lies between the Carpathian mountains and the Danube. The country consists, for the most part, of a large and fertile plain. The rivers are all tributaries of the Danube.

**Climate**—The climate being continental is characterized by great extremes—hot summers and icy winters.

**Soil**—The soil is very fertile.

**Industries**—Three-fourths of the people are engaged in husbandry. Cattle-raising and wheat-growing are the chief pursuits.

**Exports**—The main exports consist of maize and wheat; also oil-seeds, hides and petroleum.

**Race**—The people are of a very mixed character.

**Language**—The Rumanian language is a dialect of Latin mixed with many Slavonic words.

**Religion**—The state religion is the Greek Church.

**Education**—Education is neglected: only about two per cent. of the people attend school.

**Cities**—*Bucharest* is the capital and centre of the railway systems of the country.

### (*f*) Servia.

The kingdom of Servia was recognized in 1878. It was formerly a province of Turkey.

**Surface**—The surface is hilly and mountainous.

**Rivers**—The country is not well watered. The Morava, a tributary of the Danube, is the only inland river.

**Climate**—The climate is continental.

**Soil**—The soil is fertile and owned by the peasants.

**Industries**—The country is entirely pastoral and agricultural. Wheat, barley, oats and rye are exported; also swine, sheep and cattle. The swine are fattened on acorns grown by the oak forests.

**Religion**—The Greek Church is the state religion.

**Education**—Once very defective, is now progressing.

**Cities**—*Belgrade*, the capital, is the chief river port. It is the natural focus of foreign and transit trade.

### (*g*) Bulgaria.

This principality was cut off Turkey in 1878. It extends from the Danube to the crest of the Balkan mountains. In 1886 Eastern Rumelia was united to it. This province lies between the Balkans and the Rhodope spur to the south.

**Soil**—The soil is very fertile, yielding large crops of maize and wheat, and wine, tobacco and attar of roses in Rumelia.

**Climate**—The climate varies with the mountain slope. In Rumelia, on the southern slope of the Balkans, the climate is warm.

**Industries**—Eighty-five per cent. of the people are engaged in agriculture. Most of them are free landowners.

**Exports**—The chief exports are wheat, cattle and attar of roses.

Cities—*Sophia*, on the Isker, is the capital. *Varna*, on the Black Sea, is the chief port of the principality. *Rustchuk* is the chief town for manufactures and trade.

### (h) Montenegro.

This is a small principality, inhabited by Slavs, in the mountains north-west of Turkey. Its independence was recognized by the Treaty of Berlin in 1878, after a struggle with the Turks lasting nearly 200 years.

The people are chiefly engaged in pastoral and agricultural pursuits. Every shepherd is armed and a soldier. The land is held on condition of military service.

The exports are unimportant.

*Cettinje*, a small town of about 3,000 inhabitants, is the capital.

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## ASIA.

### 1.—Introduction, Page 174.

Have the introduction read orally, and require the pupils to tell in a general way the substance of their reading. Use the maps on pages 176 and 179 to locate and name the parts referred to.

Have an outline map of Asia sketched by the pupils.

For areas of the continents, see page 218.

TOPICS: Area, divisions of continent, interior basin, rainfall on interior basin.

### 2.—The Highland of Tibet, Page 174.

Locate the Tibet plateau on the maps on pages 176 and 179.

Sketch in this plateau on the outline map.

Turn to the map of the world's ridge, page 4, and locate the main mountain axis of Asia.

Point out the PAMIR PLATEAU, and explain that from this plateau, "the Roof of the World," chains of mountains radiate as follows:—

1. The HIMALAYAS to the south-east. These bound the Highland of Tibet in the south.

2. The KARAKORUM MOUNTAINS, eastward into the Plateau of Tibet.

3. The KUEN-LUN, eastward, separating the Plateau of Tibet from the Desert of Gobi.

4. The THIAN-SHAN MOUNTAINS and their extension, the ALTAI MOUNTAINS, towards the north-east.

5. The HINDU KUSH range, westward.

6. The SULIMAN MOUNTAINS, to the south.

This central tableland of Tibet is the greatest rock-mass in the world. It forms the core of Asia. In it originate the many mighty streams which, flowing down into the plains, are ever furnishing them with new supplies of fertile soil.

The winds are affected by this tableland. As soon as the sun crosses to the north side of the equator, the tableland begins to be heated up. The air over it becomes warmer and hence lighter. The heavier air pushes it up, and the indraught soon becomes so powerful that the north-east Trades are turned completely round and converted into the south-west Monsoons, which blow from April to October.

TOPICS: Position of highland of Tibet, climate, soil, mountain ranges, Mount Everest, Himalayas, Indus, Brahmaputra.

### 3.—Map Studies, Page 177.

For suggestions read the hints under North America, page 64.

### 4.—The Altai Highland, Page 178.

Have the Altai highland traced on the world's ridge, page 4, as well as on the map, page 176.

On the outline map of Asia sketch in these mountains.

Explain that the Altai mountains are a continuation of the Thian-Shan mountains; they in turn are continued by the Yablonoi and Stanovoi ranges. The average height of these mountains is from 5,000 to 7,000 feet.

The Altai mountains lie along the north-west border of the Desert of Gobi. They lie in the region of the westerly winds. The rain from these winds falls on the Siberian side of the mountains and they reach the south-eastern side as dry winds.

TOPICS: Altai highland, Yablonoi range, rainfall, products.

### 5.—The Central Basin Region, Page 178.

Have the central basin region traced on the relief map, page 176. Have pupils notice the parts of Asia included in the central basin region on the map, page 179. Have pupils turn to the map, page 54, to review the position and characteristics of the great basin of North America.

Have pupils trace the rivers Brahmaputra, Mekong, Yangtse kiang, and Hoang-ho from the plateau of Tibet to the sea. Review lesson 2 on the highland of Tibet.

Sketch the central basin region, and the different parts referred to, on the outline map of Asia.

TOPICS: Desert of Gobi, comparisons of the basins of North America and Asia, rains, rivers from the highlands of Tibet, Pamir plateau, ranges radiating from it.

### 6.—Highlands of South-west Asia, Page 180.

Have this portion of the world's ridge pointed out on the map, page 4, as well as on the relief map of Asia, page 176 On the outline map have each part that is mentioned sketched in.

Explain that the tablelands of Asia may be conveniently divided into two parts: those of Eastern Asia and those of Western Asia.

The eastern tablelands include the Plateau of Tibet, the Pamir Plateau, and the Mongolian Plateau.

The western tablelands, which begin at the Hindu Kush mountains and pass westward through Afghanistan, Persia, and Asia Minor, include the Iranian plateau, to which Afghanistan and Persia belong, the Armenian highlands, and the Plateau of Asia Minor.

Explain that the rivers Tigris and Euphrates rise in the Armenian highlands, enclose the vast fertile region called Mesopotamia (country between two rivers), and unite about one hundred miles from the Persian gulf to form one river, the Shat-el-Arab.

TOPICS: Plateau of Iran, comparison with the Great Basin, Persia, Persian salt desert, valley of Tigris and

Euphrates, region south of Black Sea, slope to Mediterranean, Dead Sea, Sea of Galilee, Peninsula of Arabia, productions.

### 7.—The Arctic and Caspian Slopes, Page 181.

Have the Arctic and Caspian slopes located on the maps on pages 176 and 179.

Have the slopes sketched in on the outline map.

Have the courses of the Obi, Yenisei, and Lena rivers traced.

Tundras are dismal frozen swamps, inhabited by fur-bearing animals, and producing lichens, mosses, and some low shrubs, as willows and birches.

It is a mistake to suppose that the whole of Siberia is a cold, barren country, any more than to suppose that the Canadian North-West is made up of barren lands. Large parts of Siberia are rapidly becoming great grain-growing regions.

The Caspian and Aral seas are the remains of an immense Mediterranean sea which at one time stretched from the Iranian plateau northward to the Arctic Ocean, and westward to the Black Sea.

TOPICS: Northern coastal plain, Siberia, Lake Baikal, climate of Siberia, tundras, Arctic animals, forest belt, steppes, Caspian and Aral seas.

### 8.—The Pacific Slope, Page 182.

Have the Pacific slope carefully traced and outlined.

Have the Amur, Yellow, Yangtse rivers traced from their source to their mouths and sketched in on the outline map.

Explain that the Imperial Canal in China extends from Pekin to Shanghai, and is the longest canal in the world, it extends for 700 miles through the great plain.

The great wall is 2,000 miles long, 25 feet wide at the top, and from 20 to 30 feet high. It winds its way over crests of craggy heights, down deep ravines, and over lofty plateaus.

The mud brought down by the Yellow river has raised its banks in its lower course above the surrounding country. Some of the dykes are 70 feet high. Sometimes this stream, called "China's Sorrow,"

breaks through its banks and overwhelms immense districts. In 1887 it drowned a million people and formed a new channel for itself.

TOPICS: Amur Basin, Yellow and Yangtse rivers, delta plain of China, soil of inland China, productions, canals, great wall of China, population, Mekong river.

### 9.—India, Page 184.

Have the outline of India carefully traced.

Have India sketched in on the outline map.

Have the great rivers traced and sketched in.

The INDUS rises north of the Himalaya mountains. It is 1,800 miles long. It receives, in one stream, the collected waters of five rivers from the *Punjab*. It discharges four times as much water as the Ganges by many mouths. Its lower course is through a dry region.

The GANGES is 1,500 miles long. It rises in a glacier in the southern face of the Himalayas. After a course of about 200 miles it enters the plain of India and flows eastward, receiving affluents, Jumna, Sone, Goomtee, Gogra, etc. It turns south 220 miles from the sea, divides into two streams, and enters the Bay of Bengal. The upper part of the delta is fertile and well cultivated; the lower part forms the "Sunderbunds," covered with jungle, and infested by tigers. The BRAHMAPUTRA, 1,800 miles long, rises in a glacier on the north side of the Himalayas. After an easterly course, it turns south and breaks through the mountains. It now turns west, and finally curves south through the plain of Bengal, joining the eastern branch of the Ganges. The Deccan is a triangular plateau between 2,000 and 3,000 feet high. It is bounded on the east and west by the Ghats, and on the north by the Vindhya mountains. It is very fertile, and enormous crops of cotton are raised.

TOPICS: Position of India, monsoons, Himalaya mountains, rainfall, rivers of India, basin of Indus, plain of northern India, the Ganges system, staple crop, Brahmaputra river, Deccan plateau, lava flow.

### 10.—Asiatic Islands, Page 185.

Have the Japan group located on the maps, pages 179 and 176.

Have Java, Sumatra, Borneo, Celebes, and the Philippine group located on the map, page 201.

Have these islands sketched in on the outline map.

Explain that these islands are owned by Holland, the United States, and Great Britain, as follows :—

*Holland* owns the whole of Java, all the Moluccas group and Banca, the greater parts of Borneo and Sumatra, and the half of Celebes.

*The United States* holds all the Philippines and the Sulu archipelago.

*Great Britain* holds Labuan, which has fine coal, and two large parts of Borneo.

TOPICS : Japan group, productions, bamboo, East Indies, banyan tree, Java, people, Sumatra, Borneo, Philippine group, Manilla.

Additional information :

**Extent**—Asia is the largest and most elevated of all the continents. Its greatest length from East Cape to Cape Baba is 6,700 miles ; its average length from east to west, 5,000 miles ; its greatest breadth from North-east Cape to Cape Romania, 5,400 miles ; its average breadth, 4,000 miles. Mount Everest is 29,000 feet above the level of the sea. The surface of the Dead Sea is 1,300 feet below the level of the Mediterranean.

**Coast Line**—The total length of coast line is 51,000 miles. Asia is much less irregular than Europe. It is a vast quadrangular mass, with the interior far removed from any ocean. The Altai mountains are about 1,600 miles from each of the three oceans that enclose the continent.

**Inlets**—The chief inlets from the *Arctic Ocean* are the Gulfs of Obi and the Sea of Kara. From the *Pacific Ocean* are the Gulf of Anadyr, Kamtchatka Sea, Sea of Okhotsk, Sea of Japan, Yellow Sea, China Sea, the Gulf of Tartary in the northern part of the Sea of Japan. In the China Sea are the Gulfs of Tonquin and Siam. From the *Indian Ocean* are the Bay of Bengal, the Arabian Sea, the Red Sea, and the Persian Gulf. At the northern part of the Red Sea are the Gulfs of Suez and Akaba.

**Straits and Channels**—The principal straits are the following : *Bering*, 36 miles wide ; the Strait of *Corea*, between Corea and Japan ; *Formosa*, between Formosa Island and China ; *Malacca*, connecting China Sea and Indian Ocean ; *Sunda*, between Sumatra and Java ; *Palks Passage*, 60 miles wide, between Ceylon and the mainland ; *Ormuz* and *Gulf of Oman* ; *Gulf of Aden* and *Bab el mandeb*, 20 miles wide into the Red Sea ; the *Dardanelles* and *Bosphorus*.

**Peninsulas**—On the northern coast is the *Taimyr* ; on the eastern coast, *Tchuktchi*, *Kamtchatka*, *Corea* ; on the southern coast, *Further*

*India*, *India*, *Arabia*; on the western coast, *Asia Minor*. Notice their directions and compare these with those of the peninsulas of America and Europe.

**Isthmus**—*Suez* is 70 miles across; this is traversed by the Suez canal.

**Capes**—The most northerly point in the old world is *Cape Chelyuskin*. On the east coast are *East Cape*, the most easterly point in Asia, and *Cape Lopatka*. On the south coast are *Romania*, the most southerly point, *Comorin* and *Ras al Had*. The most westerly point is *Cape Baba*.

**Islands**—The islands of Asia may be arranged in four groups:—

1. In the Arctic Ocean, *New Siberia* and *Bear Islands*; these are uninhabited. New Siberia Islands are noted for the quantities of fossil ivory found in them.
2. In the Pacific Ocean, the *Aleutian Islands*, enclosing Bering Sea; *Kurile Islands*, a chain of volcanic islands; *Sakhalin*, rich in coal; *Japanese Islands*, with Niphon, the largest island; *Loo-choo Islands*, belonging to Japan; *Formosa*, ceded to Japan in 1895 by China; *Hong-Kong*, 11 miles long and from two to five miles wide; *Hainan*, rich in minerals, belongs to China; the East Indian archipelago, consisting of the *Philippines* ceded to the United States in 1898; *Borneo*, the second largest island in the world; *Sumatra*, *Java*, *Celebes*, and the *Moluccas* group.
3. In the Indian Ocean, *Ceylon*; the *Andaman*, a volcanic group used as a penal settlement for Indian convicts; the *Nicobars*, *Laccadives* and *Maldives*, groups of coral atolls.
4. In the Mediterranean, *Cyprus*, a protectorate of Great Britain; *Rhodes*, etc.

**Tablelands**—Asia is the continent of great tablelands. Two-fifths of the continent consists of plateaus. They stretch across the continent from East Cape to Asia Minor. They may be divided into two parts: the plateau of Eastern Asia and the plateau of Western Asia. The *Eastern Asian plateau* consists of the *Plateau of Tibet*, with an average height of 18,000 feet; the *Pamir plateau*; the *Mongolian plateau*, between the Thian-Shan and Altai mountains, from 3,000 to 4,000 feet high, and which is 1,750 miles long and 600 miles broad. The *Western Asian plateau* includes the *Iranian plateau*, to which Afghanistan and Persia belong, the *Armenian highlands* and the *Plateau of Asia Minor*. Other plateaus are the *Arabian peninsula* and the *Deccan*.

**Plains of Asia**—The lowlands occupy the outer borders of the continent. They consist almost entirely of the flood plains of the great rivers. The principal are the following:—

1. The *Plain of Siberia.* This occupies about one-seventh of all Asia.
2. *China*, stretching inland from the Yellow Sea. Carefully cultivated and very fertile.
3. *Tonquin* and *Siam*, very fertile and well watered.
4. *Lower Burmah.*
5. *Hindustan*, between the Himalayas and the Deccan.
6. *Mesopotamia* and the country on the Persian gulf.
7. *Turkestan*, the deep depression in which the Caspian, the Sea of Aral, and Lake Balkash lie.

**Deserts of Asia**—These stretch from the eastern part of Mongolia to the western shores of Arabia. The chief deserts are the following:

1. *Desert of Gobi*, in Mongolia, a sandy waste.
2. *The great sandy Desert of Northern India*, lying east of the Indus basin.
3. The deserts in the *south-west of Afghanistan.*
4. *The great Salt Desert of Persia.* The shifting sands in Persia have overwhelmed several towns.
5. *The Desert of Mesopotamia.*
6. *The Syrian Desert*, east of the valley of the Jordan.
7. *The great Arabian Desert* in the south of Arabia. The sand is 600 feet deep in some parts.

**Lakes of Asia**—Asia has few lakes. They are nearly all north of the Asiatic part of the world's ridge. The largest are the following: *Caspian Sea*, 120,000 square miles in area, and 83 feet below the level of the Black Sea. *Aral*, a salt lake in Turkestan. *Balkash*, a salt lake in south-western Siberia. *Baikal*, a fresh-water lake in Siberia. *Lake Lob*, in Chinese Turkestan. *Urumiah*, a salt lake in Persia. *Van*, a salt lake in Armenia. *Dead Sea*, a salt lake in Syria 1,312 feet below the sea-level.

**Rivers of Asia**—All the great rivers of Asia take their rise in the great central tableland and flow north, east, south and west. They may be classified as follows:

1. *Rivers of the Northern Slope:* Obi, Yenisei, and Lena. These rivers are almost useless for commerce. Their mouths are frozen for nine months in the year. The water in the spring overflows and forms marshes.

2. *Rivers of the Eastern Slope:* Amur, Yellow, Yangtse and Canton.

3. *Rivers of the Southern Slope:* Mekong, Irrawaddy, Brahmaputra, Ganges, Indus, Euphrates, and Tigris. All these rivers are celebrated for their immense flat deltas.

4. *Rivers of the Continental Basin:* The Tarim, 1,700 miles long, flows into Lake Lob; the Amu rises in the Pamir plateau. and after a course of 1,500 miles flows into Sea of Aral; the Sir, 1,350 miles long, rises in the Thian-Shan mountains.

All the continents except Europe have inland basins, the waters of which do not reach the ocean.

**People**—Three races are represented by the peoples of Asia:—

1. *The Mongolian*, to which belong the Chinese, Tibetans, Burmese, Japanese, Turks, Finns, etc. These speak a monosyllabic language.

2. *The Caucasian*, to which belong the Hindus, Afghans, Armenians, Circassians, Jews, etc.

3. *The Malays*, occupying the Malay peninsula and the islands of East Indian archipelago.

**Religion**—In Asia originated the four great religions of the world, the Jewish, Christian, Mahommedan, and Buddhist. See page 58 of this book.

## II.—Countries of Asia.

### (*a*) India, Page 187.

See suggestions for teaching, Spain, page 101.

**Position**—India lies between the Himalayas and the Indian Ocean and between Afghanistan and Burma.

**Extent**—It is a great triangle, having an area of 1,766,642 square miles, twenty times as large as Great Britain, between six and seven times as large as Ontario.

**Surface**—The northern part is an immense fertile plain between the Himalayas and the Deccan. The southern portion is a triangular peninsula consisting of a plateau, the Deccan, enclosed by the Ghats and Vindhya mountains. Between the Ghats and the ocean are narrow coastal plains.

**Coast**—The coast is regular, 3,600 miles long, is much fringed with reefs, and is deficient in harbors. The chief inlets are the Gulfs of Cambay and Cutch, in the north-west, and Gulf of Manaar, between Ceylon and the mainland.

**Climate**—India is a hot country. The year may be divided as follows: the hot season from March to May, when there is no rain; the rainy season from June to October, during the south-west monsoon; the cool season from November to February, when the north-east monsoon blows.

**Soil**—The alluvial plains of the Ganges and Brahmaputra are very fertile. The *black* soil of the Deccan is practically inexhaustible and grows fine crops of cotton.

**Industries**—Agriculture is the great occupation of the people. The chief grains grown are *millet*, *rice*, and *wheat*; cotton is extensively grown on the "Black Lands" of the Deccan. *Tea* is now grown in enormous quantities in Assam. India surpasses all other countries in *indigo*, *jute*, *opium*, and *coffee*. India *manufactures* cotton, silk, and metal wares. The minerals are not abundant—salt is the most extensively worked one. Coal is abundant, but the quality is not the best.

**Exports**—The chief exports are tea, jute, wheat, hides, rice, coffee, wool, silk, etc.

**Ports**—*Bombay* and *Calcutta* do four-fifths of the foreign trade.

**Communication**—In addition to the waterways, India has well-constructed roads and railways leading from Calcutta, Bombay and Madras to all parts of the country. Four different trunk lines of railway cross the peninsula from west to east, and these are connected by branch lines with all the large cities.

**Race**—The people belong to the *Caucasian* race.

**Religion**—The religion of three-fourths of the people of India is Brahmanism (see page 59 of this book); the remainder are chiefly Mahometans; the Christians number about 3,000,000.

**Education**—Numerous elementary schools after European models are being established. There are five universities: Calcutta, Madras, Bombay, Lahore and Allahabad.

**Cities**—*Calcutta*, the capital of the Empire of India, the second city in the British Empire, one of the great ports of Asia. *Bombay* has the largest and safest harbor in India. It has grown very rapidly since the American war of 1861-5. Bombay then became the great cotton mart of the world. *Madras* has no natural harbor. An artificial harbor and piers have been built.

TOPICS: Empire of India, commerce, Bombay, Calcutta, Madras, Benares, Rangun, Delhi, Mandalay.

### (*b*) French Indo-China, Page 187.

French Indo-China is the official name for a region consisting of Annam, Cambodia, Cochin-China and Tonquin. Its area is about 200,000 square miles.

*Annam* is a long, narrow mountainous tract lying between the Gulf of Tonquin and the Mekong river. Copper, rice, sugar and spices are the staple products.

*Cambodia* occupies a fertile alluvial plain in the basin of the Mekong river. Rice is the staple crop.

*Cochin-China* consists mainly of the rice delta of the Mekong. It exports rice, teak, cotton, etc.

*Tonquin* is a most fertile province, bordering on China. The capital is Hanoi, an important port on the Song-ka river.

The entire country is governed by a French governor-general resident at Saigon. Under him are two resident-generals, one at Hué for Annam and Tonquin, and the other at Pnompenh for Cambodia.

TOPICS: Parts, products, trade centres.

### (*c*) Siam, Page 187.

The kingdom of Siam lies between Burma and Annam. It consists of the lower basin of the Menam river and part of the basin of the Mekong. Its soil is very fertile. Only about one-twentieth is under cultivation. Much of the country is covered with dense forests of teak and sandalwood.

The chief products are *rice* and *teak*.

*Bankok*, the capital, is the Venice of the east. It is a great port at the mouth of the Menam.

### (*d*) East Indies, Page 187.

The East Indies includes the islands to the south and east of Asia. These are subdivided as follows:—

1. *The Great Sundas*, Sumatra, Java, Borneo, Celebes, etc.
2. *The Lesser Sundas.*
3. *The Moluccas.*
4. *The Philippines*, including the *Sulu Archipelago.*

These islands are characterized by the presence of many volcanoes. The soil is remarkably fertile and very productive. Spice, sugar, coffee and rice are grown in perfection.

**Political Divisions**—The *Dutch* possess all the Great Sundas except the northern part of Borneo, nearly all the Lesser Sundas, and the Moluccas. The *United States* acquired the Philippines, Sulu Isles,

Guam, etc., from Spain in 1898. The *British* possess Labuan Island and the northern part of the island of Borneo.

### (e) China, Page 188.

The Chinese Empire lies between Asiatic Russia on the north and north-west, and British India and French Indo-China on the south. The empire includes China Proper, Tibet, Mongolia, Manchuria, Eastern Turkestan, and Zungaria. It occupies about one-fourth of Asia and is larger than all Europe.

#### 1.—China Proper.

**Position**—*China Proper* extends from Mongolia to Tonquin, and from Tibet to the Pacific Ocean. The great wall separates it from Mongolia.

**Extent**—*China Proper* is 1,750 miles from north to south, and 1,350 miles from east to west. Its area is 1,300,000 square miles, five times as large as Ontario.

**Surface**—The north-eastern part of China is an immense fertile plain; the western and south-western provinces are mountainous.

**Rivers**—China has four great rivers:—

1. *The Hoang-ho* rises in Tibet, flows through the great plain and bears to the sea immense quantities of *loess*, a solid but friable earth of a yellow color and extremely fertile.
2. *The Yangtse* rises in Tibet. It is navigable 1,500 miles from the sea. It is the longest river of Asia, and is used by an innumerable number of steamers and boats.
3. *The Pei-ho* forms a waterway between Pekin and its port, Tien-tsin.
4. *The Canton* teems with an amphibious population. It is the great waterway of the south.

**Coast**—China has 5,000 miles of coast line and many fine harbors.

**Climate**—On the whole the climate is temperate, but there are great extremes at opposite seasons.

**Soil**— nina has a fertile soil and rich vegetation. The yellow lands, extending over 250,000 square miles, is one of the most fertile regions of the world, yielding enormous crops of *grain* and *cotton*. The southern portion is also very fertile, producing vast supplies of *cotton*, *silk*, and *grain*. The south-east part is remarkable for producing the *tea plant*, a shrub of moderate size, the leaves of which are gathered to make tea.

**Industries**—The industries of China embrace *agriculture*, *manufactures*, and *commerce*. The mass of the people till the soil with care—not a weed is to be seen. The manufactures of *silk*, *cotton*, and *earthenware* are the most important. *Tea* and *silk* are the staple articles of export, and *cotton goods* and *opium* form the largest imports.

**Race**—The people of the whole empire belong to the *Mongolian* race and speak a monosyllabic language.

**Religion**—The masses are *Buddhists;* the state religion is Confucianism.

**Education**—The Chinese pay much attention to education. It is excellent and widely diffused.

**Cities**—*Pekin* is the capital. *Tien-tsin* is the port of Pekin and a "treaty port," *i.e.* a port to which Great Britain has the right of access. *Canton*, six hours by steamer up the river from Hong-Kong, has extensive manufactures of silk, porcelain, iron, brass, and ivory. *Shanghai*, at the mouth of the Yangtse, is the first commercial city of the empire.

### 2.—Tibet.

TIBET lies between the Himalayas and Kuen-Luns. It is a vast tableland, much of which is 18,000 feet above sea-level. Many great rivers originate in this plateau.

The people are almost wholly pastoral; they rear vast herds of sheep, mountain goats, and buffalo.

They are Buddhists, Tibet being the centre of Buddhism. The high priest is the Dalai-Lama, who lives at the capital, Lassa.

### 3.—Mongolia.

MONGOLIA is the vast region which lies between Tibet and Siberia. The Desert of Gobi is included in Mongolia.

The inhabitants are nomads; their chief wealth consists of flocks and herds, Mongolia being wholly a pastoral region. There are no places of much importance in the region.

### 4.—Manchuria.

MANCHURIA is an extensive country lying east of Mongolia and south of the Amur river.

*Agriculture* is the chief industry.

*Mukden* and *Kirin* are the chief places.

### 5.—Eastern Turkestan.

EASTERN TURKESTAN is a part of the continental basin of Central Asia. It is a vast embayment enclosed by the Kuen-Luns, the Pamir plateau and the Thian-Shan mountains.

It is the basin of the Tarim, a river which rises in the encircling mountains and flows eastward, until its waters are swallowed up by the desert sands around the Lob-nor.

The country is very thinly peopled. In the lowlands agriculture is followed; in the uplands, pasturage.

*Kashgar* is the capital and largest town.

*Yarkand* is the most important commercially.

### 6.—Zungaria.

ZUNGARIA, or JUNGARIA, includes the region between the Thian-Shan and the Altai mountains, and between Eastern Turkestan, on the south, and Siberia on the west. In general it is a fertile region, but successive insurrections have destroyed the people and ruined the cities.

### (*f*) The Empire of Japan, Page 188.

**Position**—The "Britain" of the Pacific is separated from Asia by the Sea of Japan.

**Extent**—Japan consists of four large islands and about 3,850 islets. Their area is about three times that of England.

**Surface**—All the islands are mountainous. They seem to be the summits of a submerged chain of mountains. Many of the peaks are volcanoes; earthquakes are common. The lowlands near the coast are well watered by mountain streams.

**Coast**—The coast is very long. It has many fine harbors, as those of Tokio and Osaka.

**Climate**—The climate resembles that of southern England. The general temperature is raised by the Kuro-Sivo.

**Soil**—Naturally the soil is not rich, but spade-culture and manure have made it very productive.

**Industries**—The chief occupation is *agriculture; rice* is the staple crop. The *manufactures* consist of *lacquer* and *bronze* wares, *porcelain*, *silk stuffs*, and *paper*.

**Exports**—The chief exports are silk, cotton yarn, coal, copper, tea, rice, and porcelain.

**Imports**—The imports consist of cotton and cotton goods, sugar, woollen goods, and iron manufactures.

**Communication**—There are now over 4,000 miles of railway.

**Race**—The Japanese belong to the *Mongolian* race.

**Religion**—The principal religions are Buddhism, the religion of the masses, and the worship of ancestral spirits, the national religion.

**Education**—Attendance at the elementary schools is compulsory. There are high, normal, and technical schools, besides two universities.

**Cities**—*Tokio*, the capital. Most of the houses are built of bamboo and cardboard, to save them from earthquakes. *Osaka* is the Venice of Japan. It is built upon many islands, and its ports are connected by more than 300 bridges. *Yokohama*, the port of Tokio, is the terminus of the great ocean routes from America and Europe.

TOPICS: Government, position, exports, imports, industries, cities.

### (*g*) Korea, Page 188.

Korea is a peninsula which stretches southward from Manchuria between the Yellow Sea and the Sea of Japan.

In its physical characteristics it resembles Italy. There is a central chain of mountains, with slopes to the east and the west. The long slope is to the west. The east coast is high and rugged.

The country is rich in forests, gold, iron, lead, and coal. The Koreans are the great paper-makers of the east.

The government is an absolute monarchy under the protection of Japan.

Seoul is the capital.

TOPICS: Trade of, Seoul, government.

### (*h*) Russia in Asia, Page 188.

Asiatic Russia consists of three distinct parts: *Caucasia*, *Central Asia*, and *Siberia*. These occupy more than one-third of Asia.

#### 1.—Caucasia.

**Position**—Caucasia lies between the Black and the Caspian seas. The chain of mountains divides it into two parts, that on the European side and that south of the mountains, *Trans-Caucasia*.

**Extent**—This province is about three times as large as England and Wales.

**Surface**—The greater part of the country is mountainous. It is well watered by mountain streams, the largest being the *Kur*, which flows into the Caspian Sea.

**Climate**—The climate, although one of extremes of heat and cold, is, however, pleasant and salubrious.

**Soil**—The soil is naturally rich and fertile.

**Productions**—Petroleum is the most valuable product. Coal, salt, silver and copper are mined. Grain and fruits are grown.

**Race**—The people belong to the Caucasian race.

**Cities**—*Tiflis*, on the Kur, is the capital. It manufactures silks, shawls, and carpets. It is the centre of trade between Asiatic Turkey, Persia, and Europe. *Batum* exports petroleum, cotton, and cereals. *Baku*, on the Caspian, is in the centre of the petroleum district.

### 2.—Central Asia.

**Position**—Russian Central Asia lies between Western Siberia on the north and Persia and Afghanistan on the south, and between the Ural River and Caspian Sea on the west, and the Chinese Empire on the east.

**Extent**—The estimated area is 1,500,000 square miles.

**Surface**—Towards the eastern and south-eastern borders it is mountainous; in the centre and west are vast, sandy plains, salt deserts, and in places beautiful oases. In general the country is poorly watered. The chief lakes are the Sea of Aral and Lake Balkash. These are both salt lakes; the latter is drying up.

**Soil**—Where the soil is watered by irrigation it is very fertile.

**Climate**—The climate is thoroughly continental, scorchingly hot in summer and intensely cold in winter.

**Productions**—*Cereals* and the *finest fruits* are grown where the soil is watered by irrigation; where the only reliance is rain only grass can be grown. The *herds of cattle* reared on the Steppes form the chief wealth of the people.

**People**—The majority belong to the *Mongolian* race.

**Cities**—*Tashkend*, the capital, on an oasis, is the focus of all the caravan routes between Europe, Siberia, India and Persia. It is connected with the Caspian by the Trans-Caspian or Central Asian Railway, which runs from Usunada, through Merv, Bokhara, Samarkand to Tashkend.

### 3.—Siberia.

**Position**—Siberia includes the whole of Northern Asia from the Chinese Empire and Russian Central Asia to the Arctic Ocean.

**Extent**—Siberia is about 3,600 miles long and 1,800 miles wide. Its area is nearly 5,000,000 square miles.

**Surface**—The greater part of Siberia is an immense lowland plain which slopes in a north-westerly direction down to the Arctic Ocean. Adjoining the Altai mountains the country is hilly. There are three well-defined regions in Siberia; the *Steppes* in the south

which produce good grass and excellent wheat; the *forest belt*, in which grow all the trees found in Europe; and the *tundras*, wide frozen marshes at the north, on which only mosses and lichens grow.

**Rivers**—Siberia has four great rivers; the Obi, Yenisei, Lena, and the lower Amur. Lake *Baikal* is the largest fresh-water lake in Asia.

**Coast**—The coast at the north is ice-bound during the greater part of the year, and in the east during a considerable part.

**Climate**—The climate is purely continental—subject to extremes. It may, however, be said to be cold at the north and temperate at the south.

**Soil**—In the steppe and forest regions there is much fertile soil. There is an enormous region of *rich black* land, stretching north from the Altai mountains and Lake Baikal, capable of producing an immense quantity of grain.

**Industries**—The two great national productions are *metals* and *furs*. Gold, silver, and copper are mined. The chief fur-bearing animals are the *brown* and *white bear*, *fox*, *beaver*, *sable*, *marten*, *mink*, *marmot*, *ermine*, and *sea otter*. In the south stock-raising and grain-growing are the principal industries.

**Race**—The country is divided by the Yenisei river into Eastern and Western Siberia. The people of Eastern Siberia are chiefly Mongolians; of Western Siberia, principally Slavs.

**Religion**—The native tribes worship good and evil powers and spirits (nature-worship).

**Communication**—The great Trans-Siberian railway is the chief highway of communication. It runs from Ufa in Europe through Omsk and Irkutsk to Stretinsk. Here it divides, one branch passing down the valley of the Amur to Vladivostock and the other cutting directly across Manchuria to Vladivostock.

**Cities**—*Tomsk* is the centre of trade in Western Siberia. *Irkutsk* is the capital of Eastern Siberia; it is one of the great centres of the fur trade. *Omsk* is the capital of Western Siberia.

### (i) Persia, Page 189.

**Position**—Persia lies between Trans-Caucasia and the Caspian Sea, on the north, and the Indian Ocean on the south, and between Asiatic Turkey on the west, and Afghanistan and Baluchistan on the east.

**Extent**—It is about 900 miles in length from east to west, and about 700 in breadth from north to south.

**Surface**—It is the western half of the great Iranian plateau. This plateau is buttressed on the north by the Elburz mountains, and by ranges on the west and south. There are narrow strips of low-lying lands along the north, west and south.

**Climate**—The climate is continental—hot summers and cold winters. The low coastal plains along the Persian gulf are intensely hot.

**Soil**—Where there is irrigation, the soil is of rare fertility. Nearly two-thirds of the country is desert.

**Industries**—The principal pursuits are *agricultural* and *pastoral; cotton*, *silk*, and *opium* are the staple products. Manufactures of *porcelain*, *carpets*, and *shawls* are carried on.

**Exports**—The principal exports are opium, fruits, silk, and carpets.

**Communication**—There are only two carriage roads in Persia, and only a few miles of railway. The trade of the country is carried on by caravans.

**Religion**—The prevalent religion is Mahometanism.

**Education**—For Asia, the Persians are well educated. In manners they are the "Parisians of the East."

**Cities**—*Teheran*, the capital, is the centre of the caravan routes of the country. The streets are dirty; the houses poor. *Tabriz* is the chief trade centre of the empire. It is adjacent to the Turkish and Russian frontiers.

### (*f*) Afghanistan, Page 189.

**Position**—Afghanistan lies between Russian Central Asia and Baluchistan, and between Persia and British India.

**Extent**—The length from east to west is about 600 miles, and the extreme breadth is 500 miles. Its area is about 250,000 square miles.

**Surface**—Afghanistan forms the north-eastern part of the Iranian plateau. It is a country of mountain ranges, narrow defiles, and small valleys.

**Passes**—A score of passes through the Afghan mountains lead from India into Afghanistan. The most famous are the Khaibar and the Bolan passes. Through these military railways have been built.

**Climate**—The climate is one of extremes of heat and cold.

**Soil**—In the low grounds the soil is fertile where irrigated. Wheat, maize, and rice are chief crops; the apples, grapes, and pomegranates of Afghanistan are celebrated throughout India.

**Race**—Most of the 400 tribes belong to the Aryan family of the Caucasian race.

**Religion**—The Afghans are Mohammedans.

**Industries**—The Afghans are mostly devoted to pastoral pursuits. The tribes estimate their wealth by the number of camels, horses, cattle, and fat-tailed sheep they possess. A considerable transit trade is done by caravan routes between India, Persia, and Russian Central Asia.

**Cities**—*Cabul*, the capital, is the centre of much caravan trade. *Herat*, the "Gate of India," is in the north-west, where the Persian, Russian, and Afghan boundaries converge. *Kandahar*, the key of India, is on the caravan route between Persia and India.

### (*k*) Baluchistan, Page 189.

**Position**—Baluchistan lies between Afghanistan and the Arabian Sea, and between Persia and British India.

**Extent**—Its extreme length is 550 miles from north to south, and greatest breadth 450 miles.

**Surface**—Baluchistan forms the south-east part of the great Iranian plateau. It is mountainous in the north and east. The south-west is a desert. The whole is poorly watered.

**Climate**—The climate exhibits great extremes of heat and cold. The desert regions are intensely hot.

**Industries**—The people in general are nomads, depending on their flocks and herds. Trade is carried on by caravans, there being neither roads nor navigable rivers.

**Race**—There are two races in the country—one of Caucasian, the other of Mongolian origin.

**Religion**—Both races are Mohammedans.

**Cities**—*Kelat*, the mud-walled capital, is 20 miles from the entrance to the Bolan pass. *Quetta* is occupied by a British garrison, and commands both Kelat and Kandahar. There is a railroad connecting it with India.

### (*l*) Asiatic Turkey, Page 189.

**Position**—Turkey in Asia includes Asia Minor, Armenia and Kurdistan, Mesopotamia, Syria with Palestine, and part of Arabia.

**Asia Minor** is a mountainous peninsula between the Black Sea and the Mediterranean. It is a tableland from 2,000 to 3,000 feet above the sea level, edged by mountain ranges. A good deal

of the interior is a salt desert. Along the coast are numerous bays and fine harbors.

**Armenia and Kurdistan** is a mountainous district lying between Asia Minor on the west and Persia and Trans-Caucasia on the east, and between the Black Sea on the north and the plains of Mesopotamia on the south.

**Mesopotamia** is an extensive, rich, lowland plain through which the Euphrates and Tigris flow.

**Syria with Palestine** is a strip of high mountain country which lies between the Peninsula of Sinai on the south and Asia Minor at the north, and between the Levant and the basin of the Euphrates.

**The Arabian part** is a strip extending down the west side of the peninsula, and including in it the Holy Land of the Mohammedans because it contains the two cities, *Mecca* and *Medina*, and the fertile district of Yemen at the south-west.

**Climate**—The climate is generally mild and warm, except in the uplands.

**Industries**—Agriculture is the most important industry. Husbandry is, however, pursued in a very inefficient manner. *Cotton*, *opium*, the *vine*, *silk*, and *fine fruits* are cultivated. *Horses*, *cattle*, *sheep* and *goats* are reared in great numbers. The *camel* is the ordinary beast of burden.

**Race**—The people are of different races. The Turks rule, but the Greeks and Armenians carry on the commerce of the country.

**Religion**—The Turks are Mohammedans; the Greeks and Armenians are Christians.

**Cities**—*Smyrna* is the busiest city in Asiatic Turkey. *Damascus* is the largest city of Syria and a great centre of caravan trade. *Bagdad*, on the Tigris, is a very prosperous city. *Mecca*, the birthplace of Mahomet, and *Medina*, containing the tomb of the prophet, are holy cities of the Mohammedans. Mecca has a great fair, which is visited by Mohammedan pilgrim traders each year. *Sana*, the capital of Yemen, lies in the heart of the coffee district.

### (*m*) Arabia, Page 189.

**Surface**—*Arabia* consists of a lofty tableland with an average elevation of 3,000 feet, which is buttressed by a fence of high mountains. It has neither lakes nor rivers. The plateau includes a series of high desert plains.

**Coast**—The coast is almost unbroken. A low, narrow plain stretches round the coast of the peninsula between the sea and the adjacent mountain region.

**Climate**—The climate is hot and very dry. Much of the country lies in the "rainless region."

**Productions**—The most valuable products are coffee and dates. Off the coast in the Persian gulf are fine pearl fisheries.

**Exports**—Coffee, gum, fruits, and horses are the most valuable exports. The internal trade is carried on entirely by caravans.

**Cities**—*Muscat*, in the south-east, has a good harbor. *Aden*, a British possession, is built in the crater of an extinct volcano.

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## AFRICA.

### 1.—Map Studies, Page 191.

See suggestion under the head of North America, page 64.

### 2. - General View of Africa Physically, Page 192.

Make constant use of the maps on pages 190 and 193. Make an outline map of Africa.

Explain that if the continents were leveled, Asia would be nearly 3,000 feet high, North America and Africa about 2,000 feet, and Australia and Europe about 1,000 feet.

Impress that Africa consists of plateaus from 2,000 feet to 9,000 feet high, buttressed by mountain ranges on the edges parallel to the coasts. These tablelands may be divided into those of North Africa and those of South Africa. The mean elevation of the North African plateaus is 1,250 feet, and of the South African, 3,500 feet.

**Subdivisions of the North African plateaus:**

1. The Berber Plateau and the Atlas range.
2. The Sahara.
3. The Sudan.

**Subdivisions of the South African plateaus:**

1. East African tableland, from the Zambesi to the northern boundary of Abyssinia.
2. The Central Plateau, coinciding with the basin of the Congo.
3. The Southern Plateau, which stretches from the watershed of the Congo basin to the Southern Atlantic.

Africa may be divided into seven regions so far as vegetation is concerned :

1. The *forest belt*, from 18° north of the equator to about 20° south of it.
2 and 3. *Grassy belts* to the north and south of this great forest belt.
4 and 5. The *rainless regions* north and south of the grassy belts.
6 and 7. The fertile regions north and south of the desert slopes.

TOPICS : Suez canal, build of Africa, central plateau, coastal plains, rivers, climate, forest belt, grassy plains, desert regions.

### 3.—Egypt and the Nile, Page 194.

Have the Nile traced from its source in Victoria Nyanza to its mouth. Refer constantly to the maps, pages 190 and 193.

Have Egypt and the Nile sketched in on the outline map.

Point out that the Nile drains two great lake systems—that in Equatorial Africa and that in Abyssinia. The reservoirs for the White Nile are Victoria Nyanza, Albert Edward Nyanza, and Albert Nyanza, The Blue Nile drains Lake Dembea. These two rivers unite at Khartoum. Two hundred miles below Khartoum the Atbara or Black River, which also rises in the Abyssinian plateau, joins the united streams. It is from the Blue and Atbara rivers that the Nile receives its supply of black mud to which Lower Egypt owes its inexhaustible fertility. The Nile descends by a series of cataracts until it reaches the level of the great flood plain at Assouan. From this to its mouth it is a great navigable stream.

TOPICS : Abyssinian plateau, Nile, flood plain, delta.

### 4.—Northern Africa and the Sahara Desert, Page 194.

Have the maps on pages 190, 191 and 193 in constant use. Have Northern Africa and the Sahara Desert sketched in on the outline map.

Explain that the Sahara is about 3,000 miles in length from east to west and about 1,000 miles in breadth. It is a set of tablelands with an average elevation of 1,250 feet ; in the east of sandstone with depressions covered with clay soil ; in the west it is an expanse of sand dunes destitute of vegetation.

TOPICS : Atlas mountains, rainfall on, Northern African people, Sahara, surface of desert, simoom, the rainless belt.

### 5.—Sudan, Page 195.

Have the position fixed by reference to the maps on pages 190, 191 and 193. Trace the Niger from its source to its mouth. Have the Sudan sketched in on the outline map.

Explain that Sudan means "*the land of the blacks.*"

This region extends across the continent from the Atlantic to the Red Sea and Abyssinia. It lies between the Sahara on the north and the Congo Basin and Gulf of Guinea on the south. It includes the basins of the Niger, Lake Chad, and the Upper Nile.

The chief towns are the following:

*Timbuctoo*, at the centre of five caravan routes, is the great emporium for *gold*, *ivory*, *india-rubber*, *salt*, etc. *Segu* is a cluster of towns on the Niger, extending for ten miles. It is now absorbed by the French in Senegambia.

The Niger is 2,500 miles long; it is the third African river in length and the second in volume.

TOPICS: Position of Sudan, character of surface, Lake Chad, people of Sudan, trade of Sudan, Niger basin, delta of Niger.

### 6.—The Congo Basin, Page 196.

Have the maps constantly used.

Sketch the Congo basin on the outline map of Africa.

The Congo is 3,000 miles long. It rises in the uplands north of Lake Nyassa. In volume of water it stands next to the Amazon and Mekong. Its waters can be recognized 40 miles at sea. Its estuary is six miles wide. The navigation is obstructed by falls and rapids.

TOPICS: Position of the basin, rainfall, the Congo, vegetation of, animals of, natives, trade.

### 7.—Southern Africa, Page 197.

Have the maps of Africa in constant use.

Have the parts sketched in on the outline map.

The *Zambesi* is the great river of the pastoral belt of South Africa. Its numerous falls and cataracts render it useless for navigation. At the Victoria Falls the river is crossed by a bridge to carry the Cape-to-Cairo railway.

The *Kalahari Desert* extends from the Orange River to about 20° S. latitude. It is a dry, sandy tract without running water.

TOPICS: Zambesi basin, Zambesi river, natives, Cape Colony, productions of, Kimberley, native peoples, Madagascar.

Additional information:

**Extent**—The greatest length of Africa from Cape Blanco to Cape Agulhas is 5,000 miles, and the greatest breadth from Cape Verde to Cape Guardafui is nearly the same. It occupies nearly one-fourth of the land surface of the globe, its area being 11,500,000 square miles.

**Coast**—The coast is very short, amounting to only 16,000 miles. Africa is a very compact continent. There are few indentations. No seas, no useful bays or gulfs penetrate the land.

**Inlets**—The chief inlets in the north are the *Gulfs of Sidra* and *Cabes;* on the east are the *Red Sea*, *Gulf of Suez*, and *Sofala* and *Delagoa* bays; on the south is *Algoa* bay; and on the west are the *Gulf of Guinea* containing the *Bights of Benin* and *Biafra*, *Walfisch* and *Table* bays.

**Straits and Channels**—The *Strait of Gibraltar*, eight miles wide between Morocco and Gibraltar; the *Strait of Bab-el-Mandeb*, 20 miles wide, connecting the Red Sea and the Gulf of Aden; the *Mozambique Channel*, between Madagascar and the mainland.

**Peninsulas**—There are no peninsulas of any considerable size in Africa.

**Isthmuses**—The *Isthmus of Suez*, connecting Africa and Asia, is the only important one. It is about 70 miles across. It is traversed by the Suez Canal. This canal was begun in 1860, and completed in 1869. It is about 100 miles long and 31 feet deep.

**Capes**—The most northerly point is Cape *Blanco*.
" southerly " " *Agulhas*.
" easterly " " *Guardafui*.
" westerly " " *Verde*.

**Islands**—Africa has few islands. A number of those that do exist are *oceanic* islands. On the west the only important *continental* islands are *Fernando Po* and *St. Thomas*, in the Gulf of Guinea. On the east the largest *continental* islands are *Zanzibar*, *Socotra*, and *Pemba*. The *oceanic* islands on the east are *Madagascar;* the *Seychelle*, *Amirante*, and *Comoro* groups; *Mauritius* and *Bourbon*. The

*oceanic* islands on the west are the *Madeira*, *Canary*, and *Cape Verde* groups of volcanic formation; and *St. Helena* and *Ascenscion*.

**Continental Basins**—There are in Africa two large areas of continental drainage from which no water flows to the ocean. One is in the north, and has *Lake Chad* as its centre. This is a shallow lake not more than 20 feet deep. Its principal feeder is the *Shari River* a great stream in Central Africa. The other is in the south near the Kalahari desert and *Lake Ngami* is its centre. Its principal feeder is the *Tioge*, which flows after rains.

**Lakes**—Africa ranks second to North America in the number and size of its lakes. All are on the east side of the continent and in the southern tableland. The largest are the *Victoria*, *Albert*, and *Albert Edward Nyanzas*, feeders of the White Nile. *Tanganyka* and *Bangwelo*, feeders of the Congo, and *Lake Nyassa*, the greatest feeder of the Zambesi.

**Rivers**—In addition to the four great rivers of Africa, the *Nile*, the *Congo*, the *Niger*, and the *Zambesi*, other important rivers are the following: *Senegal*, which divides the rainy from the rainless regions; also the Arab from the Negro tribes of the Sudan. *Gambia*, 700 miles long and is navigable 270 miles. The *Coanza*, 700 miles long, the important river of Angola. The *Orange*, 1,300 miles long, rises in the highlands of the east. The *Limpopo* is the second largest of the East African rivers.

**Climate**—Africa is the hottest continent. Three-fourths of its area is within the torrid zone. In the desert regions at the north and the south rain rarely falls. Central Africa is well watered. The year, there, is divided into the dry and the wet season. The wet season occurs when the sun is vertical. The causes which contribute to the making of the African climate as it is are the following:—1. The *coastal ranges of mountains*, which bar the progress of rain-bearing winds. 2. The *prevailing winds* from the north-east and south-east. These drop their moisture in the one case on the Atlas highlands, and in the other on the south-east barriers of the continent. 3. The *elevated tablelands* which draw the rains and the winds from both sides. 4. The *absence of deep ocean inlets*, hence the climate of Africa is especially continental.

**Soil**—Where there is abundance of rain the soil is very fertile.

**Vegetation**—The vegetation of Northern Africa resembles that of Southern Europe. *Wheat*, *barley*, the *cork tree*, *oranges* and *olives* grow to perfection. South of the Atlas mountains the *date-*

*palm* ripens its fruit. This is "the bread of the desert," and supplies food not only to man but also to horse and camel. The Sudan produces the *cassava*, the *yam*, and the *ground nut*. The *boabab* or monkey-bread tree, *sago palms*, *oil palms*, and *cotton trees* are characteristic of this region. The region south of the Orange River produces *aloes*, *heaths*, *euphorbias*, and ornamental plants.

**Animals**—Africa is the home of "great beasts." The best known are the *elephant*, *hippopotamus*, *rhinoceros*, *lion*, *giraffe*, *zebra*, *gorilla*, and among birds the *ostrich* and *secretary bird*.

**Minerals**—Gold, diamonds, and copper are plentiful in South Africa. However, little is yet known of the minerals of Africa.

**Inhabitants**—In Northern Africa the *Moors* and *Arabs* are found. The *Negroes* inhabit the Sudan. The *Kaffirs* and *Bechuanas* live between the equator and the Hottentot country. The *Bushmen* and *Hottentots* live in the south and south-west.

**Religion**—The northern part of Africa as far south as the Sudan, and along the east coast to Zanzibar, is *Mohammedan*. The majority of the natives south of this region are *nature worshippers*. In South Africa the people generally are *Christians*.

## 8.—Countries of Africa, Page 198.

For convenience in classifying its countries, Africa is divided into the following parts :—

1. *The Barbary States.*
2. *Egypt and the Egyptian Sudan.*
3. *Abyssinia.*
4. *The Sahara.*
5. *The Sudan.*
6. *Western Africa.*
7. *Eastern and Central Africa.*
8. *Southern Africa.*

### 1.—The Barbary States.

*The Barbary States* is the name for four countries bordering on the Mediterranean. They are *Morocco*, *Algeria*, *Tunis* and *Tripoli*. They are named from the Berbers who occupied the land before the Arabs. The Atlas mountains extend east and west through Morocco, Algeria and Tunis. The northern slopes are well watered ; the rivers are short and of no importance ; the climate and productions resemble those of the Mediterranean countries of Europe. The southern slopes are very hot and little rain falls on them.

#### (*a*) Morocco.

**Position**—This is the most western of the Barbary States.

**Surface**—There are three distinct regions in Morocco : (1) The *Tell*, a breadth of fertile land between the coast and the highlands ; (2) the *Highlands ;* (3) the *Desert* region to the south.

**Industries**—Morocco is chiefly a pastoral country. There are immense numbers of sheep, goats, oxen, asses, etc. The only important manufacture is the preparation of *leather*. In the Tell, wheat, maize, beans, pease, etc., are cultivated.

**Cities**—*Morocco* is the capital. *Fez* is a "holy city," almost as much reverenced as Mecca and Medina. *Mequinez* is the centre of the agricultural district.

### (*b*) Algeria.

**Position**—Algeria lies between Morocco and Tunis and stretches into the boundless Sahara on the south.

**Surface**—Like Morocco, Algeria consists of three parts, (1) the *Tell*, (2) the *Highlands*, and (3) the *Desert*. The French are sinking artesian wells to reclaim the desert.

**Productions**—The Tell is well watered and very fertile. It produces fine crops of wheat, olives, tobacco, cotton, and vines. The principal exports are *wheat*, *wine*, and most important of all *alfa*, a grass which grows wild and is used in paper-making.

**Cities**—*Algiers* is the capital of African France. *Oran* is a busy trading port. *Constantine*, in the interior, has extensive leather industries.

### (*c*) Tunis.

**Position**—Tunis, a protectorate of France, lies east of Algeria.

**Surface**—Its surface is similar to Algeria but the mountains are not so high.

**Industries**—The land is well cultivated. The chief articles of export are *alfa*, *wheat*, and *olive-oil*. Much attention is also given to rearing sheep, goats, and cattle. The manufactures consist of silks, woollen stuffs, and leather.

**Cities**—*Tunis*, the capital, is the chief commercial city.

### (*d*) Tripoli with Fezzan and Barca.

**Position**—This province of Turkey lies between Algeria and Egypt.

**Surface**—The greater part is a desert. Rain seldom falls. It is almost a region of rocky tablelands and trackless sands.

**Industries**—Much of the products of the Sudan are exported through Tripoli. The chief exports are *ostrich-feathers*, *alfa* or *esparto grass*, *wheat* and *ivory*.

**Cities**—*Tripoli*, the capital, is the Mediterranean terminus of a great caravan route from Timbuctoo and Lake Chad, across the Sahara.

### 2.—Egypt and the Egyptian Sudan.

**Position**—*Egypt proper* occupies the north-eastern part of Africa. It extends from the Mediterranean to Wady Halfa at the second cataract of the Nile, and from the Red Sea to Fezzan and Tripoli. The Egyptian Sudan extends south from Wady Halfa to the borders of Uganda and Belgian Congo, a distance of about 1,200 miles, and stretches from the Red Sea and Abyssinia to the confines of Wadai in Central Africa.

**Surface**—The fertile part of Egypt proper consists of the Delta and a narrow valley enclosed by high chains of rocks upon each side. These separate the cultivatable land from the desert. This fertile land is renewed year by year by the large quantities of mud brought down by the river.

**Climate**—Except in the Delta it rarely rains. The climate is warm and dry.

**Industries**—Agriculture is the one great industry of Egypt. The staple crops are *cotton*, *wheat*, *rice*, and *sugar*.

**Exports**—The chief exports are *cotton* and *cotton-seeds*; others are *beans*, *sugar*, *rice*, and *wheat*.

Egypt has now about 2,200 miles of railway.

**Cities**—*Cairo*, the capital, situated at the apex of the delta, is the largest city of Africa. It is the emporium for the wares of the east and the west. It has a great university, a noted seat of Mohammedan learning. *Alexandria* is the great maritime emporium for the exports and imports of Egypt.

**The Egyptian Sudan**—The most valuable product of this immense territory is ivory. Among the agricultural products are *cotton*, *indigo*, *tobacco*, *dates*, and *dhurra*.

**Cities**—*Khartum* is the converging point of all the caravan routes and hence is the centre of traffic. *Ivory*, *ebony*, and *ostrich-feathers* are sent north to Cairo. A railway now connects this city with the north. *Suakim* is an important port on the Red Sea.

### 3.—Countries on the West Coast.

1. *Rio de Oro* and Adrar, a Spanish possession which lies south of Morocco, and stretches south to Cape Blanco. Its capital is Rio de Oro.

2. *French Sahara*, which lies between Rio de Oro and Senegal.

3. *Senegal*, a French possession, between French Sahara and Gambia; capital, St. Louis.

4. *Gambia*, at the mouth of the Gambia River, is a British possession; capital, Bathurst.

5. *Portuguese Guinea* is completely surrounded on the land-side by French possessions.

6. *French Guinea* lies on the coast between Portuguese Guinea and Sierra Leone; capital, Konakry.

7. *Sierra Leone* lies between French Guinea on the north and Liberia on the south. It is a British possession; capital, Freetown.

8. *Liberia*, an independent republic, lies between Sierra Leone on the north-west and Ivory Coast on the east; capital, Monrovia.

9. *Ivory Coast*, a French possession, lies between Liberia and British Gold Coast Colony; capital, Bingerville.

10. *Gold Coast and Ashanti*, a British possession, lies between French Ivory Coast and German Togoland; capital, Cape Coast Castle.

11. *Togoland*, a German possession, lies between the Gold Coast Colony and the French colony of Dahomey; capital, Lome.

12. *Dahomey*, a French possession, stretches from Togoland to the British possessions of Lagos and Nigeria.

13. *Lagos*, a British possession, lies between Dahomey and Nigeria; capital, Lagos.

14. *Nigeria* is the name of a large British possession lying in the basin of the Niger. It stretches from Dahomey, on the west, to the German Protectorate of Kamerun on the east, and from the Gulf of Guinea to the 14th parallel of north latitude. It is subdivided into *Northern Nigeria*, capital Zungeru, and *Southern Nigeria*, capital Old Calabar.

15. *The Territories of Senegambia and the Niger.* This French possession is bounded on the north by Algeria, on the west by French Guinea, on the south by the frontiers of Ivory Coast, Gold Coast, Togoland, and Dahomey; on the east by Lake Chad.

16. *Kamerun*, a German Protectorate, lies between British Nigeria and French Congo; capital, Buëa.

17. *Rio Muni*, a Spanish possession, lies south of Kamerun, and is bounded on the east and south by French Congo.

18. *French Congo* extends along the Atlantic coast, between the Spanish territory of Rio Muni and Kamerun on the north, and the Congo Free State on the south; capital, Libreville.

19. *The Congo Free State*, an independent state, occupies the basin of the Congo; capital, Boma.

20. *Angola*, a Portuguese possession, lies south of the Congo Free State and north of German South-west Africa, and extends into the interior as far as British Rhodesia; capital, St. Paulo de Loanda.

21. *German South-west Africa*, a German Protectorate, includes the region lying south of Portuguese West Africa and north of Cape Colony, and extending eastward to the British sphere, except *Walfisch Bay*, which belongs to Cape Colony.

### 4.—South Africa.

South Africa includes that part of Africa south of the 15th parallel of latitude. It embraces the basin of the Zambesi and all south of it.

**Surface**—The land rises from the sea in three terraces; the coastal plain and first terrace are well watered and very fertile. In the second terrace the rainfall is scanty. This is called the Great Karroo, *i.e.* a barren tract of clayey tableland. It is not really a desert, for when rain falls it quickly clothes itself with grass. The third terrace is buttressed by the Drakenberg mountains which deprive the inland districts of rain.

**Coast**—The coast is almost unbroken and is remarkable for the absence of good harbors.

**Climate**—The air is clear and dry and the climate healthy. The rainfall is considerable along the coastal plain and first terrace but is very scanty in the interior and west, owing to the fact that the winds deposit their moisture on the highlands on the east and blow over the tableland of the interior as dry winds.

The following are the chief subdivisions of this region:—

1. *Cape Colony*, a self-governing British colony, is bounded on the north by German South-west Africa, Bechuanaland Protectorate, Orange River Colony, Basutoland, and Natal.

**Cities**—*Cape Town*, the capital, has a graving dock large enough to repair the largest vessels. It exports wool and wine. *Kimberley* is the centre of the greatest diamond-mining district of the world.

2. *Natal*, a self-governing British colony, stretches north along the Indian Ocean from Cape Colony to Portuguese East Africa, and lies between the Drakenberg mountains and the Indian Ocean. The chief industry is sheep-rearing. Sugar is also raised.

**Cities**—*Pietermaritzburg* is the capital. *Durban* is the chief port.

3. *Basutoland*, a Crown colony, is surrounded by Cape Colony, Natal, and the Orange River Colony. This well-watered plateau grows fine wheat and produces large numbers of cattle.

**Cities**—*Masern* is the chief town.

4. *Orange River Colony* lies between the Transvaal on the north and Cape Colony at the south, and between Cape Colony at the west and

Basutoland and Natal at the east. The chief occupation is sheep-farming, and the principal exports are wool, ostrich-feathers, and hides.

**Towns**—*Bloemfontein*, the capital, is the commercial and political centre of the colony.

5. *The Transvaal* lies between the Limpopo River on the north and Orange River Colony on the south, and between Bechuanaland and Bechuanaland Protectorate on the west and Portuguese East Africa on the east. The soil is fertile, but the chief wealth of the country consists in the gold.

**Cities**—*Pretoria*, the capital, is a finely-built city. *Johannesburg* is the great mining town. It is the centre of railway systems which connect the town with the *Cape*, *Durban*, *Delagoa Bay*, etc.

6. *Bechuanaland Protectorate* comprises the territory lying between the Molopo River, the northern boundary of Bechuanaland, on the south, and the 22nd degree of S. lat. on the north, and between German South-west Africa on the west and the Transvaal on the east. Cattle-rearing and agriculture are the chief industries.

7. *Rhodesia* is a vast territory within the sphere of British influence, which extends from the Bechuanaland Protectorate on the south, to the Congo Free State and the shores of Lake Tanganyika on the north, and from Portuguese West Africa and German South-west Africa on the west to Portuguese East Africa on the east. The country is high, dry, and generally healthy.

8. *British Central Africa Protectorate* extends from Lake Nyassa on the east, to the Congo Free State on the west, and from Portuguese East Africa on the south, to the Congo Free State and German East Africa on the north. *Blantyre* is the chief town. The exports are *coffee* and *tobacco*.

### 5.—East Africa.

The descriptions of West Africa and of South Africa apply to East Africa. The coast is bordered by a low plain. Then the country rises by a succession of plateaus to the Central African plateau. North of the equator the climate is dry and the soil barren. The coastal plains are unhealthy, but the plateaus are fit for European settlement. The rivers are all short, except the Zambesi, and unfit for navigation. East Africa is divided politically as follows:—

1. *Portuguese East Africa* stretches along the coast from Natal to German East Africa, and lies between the British possessions of the Transvaal, Rhodesia, and British Central Africa and the Indian Ocean. The country is unhealthy.

**Towns**—*Lorenzo Marques* on Delagoa Bay is connected with Johannesburg by a railway.

2. *German East Africa* lies between Portuguese East Africa on the south and British East Africa on the north, and between the Congo Free State on the west and the Indian Ocean on the east. Rubber, coffee, and grain are exported.

3. *Zanzibar Protectorate.* This consists of the islands of Zanzibar and Pemba, in the Indian Ocean. off the coast of German East Africa. *Zanzibar*, the chief town, is an important port.

4. *British East Africa* extends along the coast from German East Africa to Italian Somaliland, and inwards to the Uganda Protectorate, the Congo Free State and the Egyptian Sudan. The chief town is Mombasa, from which a railway runs to Victoria Nyanza.

5. *The Uganda Protectorate* lies south-west of British East Africa. It lies between the 5° of north lat. and the frontier of German East Africa, and between Lake Rudolf and the Congo Free State.

6. *Italian Somaliland* extends along the coast from the Juba River to Cape Guardafui, and inwards till it meets with Abyssinia and British Somaliland.

7. *British Somaliland* lies along the coast of the Gulf of Aden, between Italian and French Somaliland, and is bounded on the south by Abyssinia and Italian Somaliland.

8. *French Somaliland.* This is a small territory immediately south of the Strait of Bab-el-Mandeb. It extends from British Somaliland to the Italian colony of Eritrea, and is bounded on the south-west of Abyssinia.

9. *Eritrea*, an Italian colony in the southern part of the Red Sea coast, is a strip of barren land lying north of French Somaliland and Abyssinia. Massowa is the capital and chief port.

10. *Abyssinia* lies between the Egyptian Sudan and the Italian, French, and British possessions along the coast of the Red Sea.

**Surface**—It is a lofty pear-shaped plateau, very rugged, consisting of lofty tablelands crossed by mountain chains.

**Climate** — According to elevation three kinds of climate are distinguishable :—1. The hot lands from 3,000 to 5,000 feet above the sea level. These produce cotton, coffee, indigo, sugar-cane, bananas, and dates. 2. The lands up to 9,000 feet. Here the vine and peach flourish. 3. The highest belt. Here oats and barley grow, and large herds of cattle, sheep, and goats are pastured.

**Industries**—*Agriculture* and *pastoral* pursuits are the main industries. Coffee, sugar, and cotton are produced. There are no roads. Transportation is effected by mules, pack-horses, donkeys, and, in some cases, camels.

**Towns**—*Gondar*, once the capital of Ethiopia, is still the ecclesiastical capital. *Samara* is the military capital. The *Negus*, the emperor, resides here.

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## AUSTRALASIA.

### 1.—Map Studies, Page 199.

Refer to the maps on pages 199 and 201.

For further suggestions see North America, page 64.

Note that Papua is a synonym for New Guinea. Australasia, or "Southern Asia," is the name given to the larger British colonies and possessions in Oceanica. Australasia thus comprises Australia, Tasmania, New Zealand, and British New Guinea.

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## AUSTRALIA.

### 1.—Introduction, Page 200.

Have the maps on pages 199 and 201 constantly used.

Have an outline map of Australia drawn, and on it sketch in the parts referred to.

For the areas of the states see page 219.

The area of Australia is nearly 3,000,000 square miles. Among the forest trees the eucalypti, or gum trees, are the most remarkable. They attain a great size, even overtopping the mammoth trees of California in height. They are valuable for lumber. Other trees are cedars, pines, native beeches, etc.

TOPICS: Size, surface, rainfall, Murray River, lakes, forest region, inland plains, animals, natives, sources of wealth.

## Additional information:

**Position**—Australia lies south of Asia, and is wholly in the southern hemisphere. The Tropic of Capricorn divides it into two nearly equal parts.

**Size**—Its greatest length from east to west is 2,400 miles, and its greatest breadth from north to south is 2,000 miles. Its area is about 3,000,000 square miles.

**Coast Features**—The coast line is generally regular. There are few large openings. It is 8,800 miles in length. There are a number of good harbors in the south-east.

**Peninsulas**—In the north are *Arnhem Land* and *Cape York Peninsula;* in the south *Yorke Peninsula.*

**Capes**—The most northerly point is *Cape York;* the most easterly, *Cape Byron;* the most southerly, *Cape Wilson;* and the most westerly, *Steep Point.*

**Seas**—In the north are *Arafura* and *Timor Seas*, and in the north-east *Coral Sea.*

**Gulfs**—In the north are the *Gulf of Carpentaria* and *Cambridge Gulf;* in the west, *Shark Bay;* in the south, the great *Australian Bight*, *Spencer Gulf* and *Port Philip;* in the east, *Botany Bay* and *Halifax Bay.*

**Straits**—*Torres Strait*, between Australia and New Guinea, *Bass Strait*, between Australia and Tasmania.

**Islands**—The islands are small and unimportant. The *Great Barrier Reef*, which extends along the north-eastern coast from Torres Strait south-eastward for nearly 1,200 miles. It is generally from 10 to 20 miles from the shore, but in some places 100 miles. It varies in width from a few miles to 100. Opposite the mouths of rivers are openings which permit access to the quiet waters between the barrier and the mainland.

**Surface**—The characteristic features of Australia are a narrow continuous plain round the whole coast; a vast low plateau about 1,000 feet high, mostly unwatered; and in the south-east the great river-basin of the *Murray-Darling.* The *Dividing Range* separates the low plain on the east and south-east from this basin.

**Mountains**—The mountains lie along the east side, between Wilson Point and Cape York. They are called by the general name *the Dividing Range.* They consist of a series of ranges separated by deep valleys, and are nowhere more than 150 miles from the coast. The Australian Alps is the highest range, and Mount Townsend, 7,350 feet, is the highest mountain.

**Rivers**—The only river of importance is the *Murray*, with its tributaries the *Darling* and *Murrumbidgee*. These rivers, with their tributaries, take their rise in the *great dividing ridge* towards the south-east of the continent. In drought these streams often become merely detached pools. In the wet season they are subject to sudden and violent floods. The *Swan River* in the west is navigable.

**Lakes**—The lakes vary greatly in size at different times. Sometimes they become grassy plains. Many of them are only salt marshes. *Lake Eyre* is the centre of the "Continental" rivers of Australia. A number of streams find their outlet in this lake, the waters of which are saline.

**Climate**—The climate varies from tropical in the north to warm temperate in the south. The mountains along the eastern side have a good rainfall, but the interior is so warm that moisture is not condensed there.

**Soil**—Fertility depends upon the rainfall. The most productive region is between the dividing range and the sea. The basin of the Darling and other streams produce nutritious grasses which sustain immense flocks of sheep. The vine, orange, fig, olive and peach flourish better in Australia than in Europe; wheat, maize, oats and barley return abundant crops.

**People**—The aborigines are fast disappearing. They belong to the Austral-Negro race. They are low savages without house or domestic animals, their chief occupation being hunting and war.

**Railways**—The capitals, *Adelaide*, *Melbourne*, *Sydney* and *Brisbane* are connected by railway. Lines run from the east and south, also into the interior. In the west *Perth* is connected with the inland gold-centres.

**Religion**—There are no state churches in any of the Australian states.

**Education**—Education in each state is state-aided, compulsory, and to a large extent free.

### 2.—Commonwealth of Australia, Page 202.

Have the map on page 201 in constant use.

Outline each colony in the sketch map.

TOPICS: Productions of the colonies, chief cities, Melbourne, Sydney, Adelaide, Brisbane.

Additional information:

On January 1st, 1901, New South Wales, Victoria, Queensland, South Australia, Western Australia and Tasmania were united to form

the Commonwealth of Australia. The Federal Parliament consists of the King, represented by a Governor-General, a *Senate*, and a *House of Representatives*.

The *Senate* is elective, each of the States appointing by vote of the whole electorate six Senators, who hold office for a term of six years. Half of the Senate retires every three years, but the whole body may be dissolved in case of continuous opposition to the House of Representatives.

The House of Representatives has, as nearly as can be, twice as many members as are in the Senate, distributed among the States in proportion to population. The Representatives are elected for three years.

Each *State* has a State Legislature, which has control of all matters not belonging to the Federal Parliament.

For the area and population of each State, see page 219.

### 1.—Victoria.

**Position**—Victoria forms the south-east part of Australia.

**Surface**—The country naturally consists of three parts, the *coastal plain*, the great *Dividing Range*, and the *country north* of the mountains, sloping towards the Murray River.

**Climate and Soil**—The climate is warm and genial, the soil rich.

**Industries**—The chief industries are sheep-farming, agriculture, and mining; and the chief productions are *wool*, *wheat*, and *gold*.

**Towns**—*Melbourne*, the capital of the state, is the chief commercial centre in the southern hemisphere. Its streets are straight and cross one another at right angles. *Ballarat* and *Bendigo* are famous mining towns.

### 2.—New South Wales.

**Position**—This state, the oldest of the Australian colonies, occupies the central part of the eastern division of Australia.

**Extent**—The greatest length of the state is 850 miles; average length 600 miles; the greatest breadth is 600 miles.

**Surface**—There are three subdivisions of the state, the narrow coastal plain from 30 to 100 miles wide, the Dividing Range which forms the edge of the Australian plateau, and the great plains which slope westward and comprise the great bulk of the country.

**Climate and Soil**—The climate is warm, dry, and healthy. The plains west of the mountains often suffer from drought. The soil is rich, and, where watered, very fertile.

**Industries**—The chief industries are sheep-farming and agriculture; there is some mining.

**Productions**—The principal productions are *wool*, *coal*, *silver*, *gold*, *wheat*, *maize*, etc.

**Towns**—*Sydney*, on Port Jackson, one of the finest harbors in the world, has the largest graving dock in the world. *Newcastle*, on Port Hunter, owes its importance to the existence of immense coal deposits in the neighborhood.

### 3.—Queensland.

**Position**—Queensland occupies the north-eastern part of the continent.

**Extent**—It is 1,300 miles in greatest length and 800 miles in greatest breadth.

**Surface**—The main features of the surface are the low-lying coastal plains, the plateaus and mountains which cross it at a distance of 100 to 200 miles from the coast, and the great plains of the interior.

**Climate**—The coast-lands are hot and moist; the interior is hot and dry. The rain is scanty in the interior.

**Industries**—The principal industries are sheep and cattle rearing, agriculture, and farming. *Sugar-cane*, *maize*, *wheat*, and *rice* are the chief agricultural products; *gold* and *coal*, the chief mining products.

**Exports**—The principal are wool, sugar, gold, tallow, hides, etc.

**Towns**—*Brisbane*, the capital, situated on the Brisbane River, 12 miles from its mouth, has a large trade.

### 4.—South Australia.

**Position**—South Australia is the great central section of Australia. It extends across the continent from the Southern to the Indian Ocean.

**Extent**—It is from 1,500 to 1,900 miles from north to south, and from 600 to 700 miles from east to west.

**Surface**—The greater part of the state is a tableland about 1,000 feet in elevation. In the south-east the land is low. The tableland is mainly desert, treeless, waterless, and arid. In the southern part of the state are a number of salt lakes, some of which dry up during a period of drought.

**Climate**—The climate is hot and very dry; the air is pure and healthy; the rainfall is altogether insufficient for agriculture, except in the south-east and in the extreme north.

**Soil**—Where the soil is watered it is fertile.

**Industries**—The chief are agriculture in the south-east, sheep farming, and mining. *Copper* is the principal mining wealth of the state, and wheat the principal agricultural product.

**Exports**—The principal are wool, wheat, and copper ore.

**Towns**—*Adelaide*, the capital, has famous botanic gardens.

### 5.—Western Australia.

**Position**—This state comprises all the continent west of South Australia.

**Extent**—It occupies nearly one-third of the continent. Its greatest length is 1,450 miles and greatest breadth 850 miles.

**Surface**—This is a vast plain, broken only by a few hill ranges, with a strip of low land lying along the coasts. Much of it is desert.

**Climate**—The climate is dry and healthy. The south-west is the only part that receives sufficient rainfall.

**Soil**—Where watered the soil is fertile.

**Industries**—Agriculture flourishes in the south-west; stock-farming along the rivers on the west coast; in the interior are gold mines.

**Productions**—Gold, wool, and timber are the stock productions.

**Towns**—*Perth*, the capital, is finely situated on Swan River.

### 6.—Tasmania.

**Position**—Tasmania lies south of Victoria, from which it is separated by Bass Strait, 120 miles wide.

**Extent**—The greatest length from north to south is 230 miles, and the greatest breadth from east to west is 190 miles.

**Surface**—The island is a plateau from 2,000 to 3,000 feet in elevation, with numerous chains of hills running across it. The coast is bold and much indented.

**Climate**—The climate is warm, temperate, healthy, and pleasant; rainfall is abundant.

**Soil**—The valleys and eastern plateau are very fertile. Much of the island is covered with luxuriant forests.

**Exports**—The chief exports are copper, wool, tin, fruit, timber, silver and gold.

**Towns**—*Hobart*, at the southern end of the island, the capital, has an excellent harbor.

## 3.—New Zealand, Papua and other Islands, Page 202.

### (*a*) New Zealand.

Have the map on page 201 used.

Have these islands sketched on an outline map.

## Additional information:

The two large islands are called North Island and South Island. These are separated by Cook's Strait, 13 miles wide. The small island at the south is Stewart Island. The three islands are about 1,100 miles long and about 100 miles in average breadth. No place is more than 75 miles from the sea. There are a number of outlying islands collectively known as the *Off Islands.*

**Coast**—There are many islands and some excellent harbors.

**Climate**—The climate is mild, warmer and more equable than that of England. The west side of the islands has the heavier rainfall. Why?

**Soil**—The soil is remarkable for its richness; some is alluvial and others of volcanic debris. Forests cover about one-third of the country, and are a characteristic feature of New Zealand.

**Industries**—The three chief occupations are sheep and cattle farming, agriculture, and mining. There are about 20,000,000 sheep in the colony. The islands possess 2,400 miles of railway.

**Exports**—The chief exports are wool and frozen mutton, hides and frozen beef, grain, gold, coal, and silver.

**Religion**—There is no state church; all religions are tolerated.

**Education**—Education is free, secular, and compulsory.

### (*b*) Tasmania.

See page 147 for additional information.

### (*c*) Papua.

Papua, or New Guinea, lies north of Queensland, from which it is separated by Torres Strait, 90 miles wide. It is 1,500 miles in length from north-west to south-east, and varies in breadth from 200 to 450 miles.

**Surface**—In the interior are lofty mountains extending throughout the entire length of the island. Large rivers rise in these mountains. The island is covered for the most part with dense forests of cedar, india-rubber, sandal-wood, ebony, etc. It is only partly explored.

**Climate**—The climate is tropical, hot, moist, and in the rainy season very unhealthy.

**Soil**—The soil is very fertile. The natives cultivate rice, maize, yams, cocoanuts, sago, sugar-cane, bananas, etc.

**Political Divisions**—In 1885 the island was partitioned among Dutch, Germans, and British. The Dutch received the western half of the island, the Germans the northern part of the eastern half, and the British received the south-eastern part. The British part is governed by the Australian Commonwealth.

### (*d*) Coral and Volcanic Islands, Page 203.

See lesson on *Coral Islands*, geography, page 37, and manual, page 54. See, also, *Barrier Reef*, south-east of Queensland, page 143 of manual.

### (*e*) Polynesia.

Explain that the term *polynesia* means many islands. This term is used by geographers in two senses. In the first meaning it embraces all the islands in the Pacific Ocean that are not included in the *continental* islands of Asia and Australia. In its limited meaning it includes a number of groups of small islands lying east of Australia.

The islands embraced by Polynesia in its *wide* meaning are subdivided into three great groups :—

I. MELANESIA, embracing the islands between New Guinea on the west and the Fiji Islands on the east, and lying *south* of the equator. The principal islands of this subdivision are the following :—

1. *New Guinea.* See page 148 of manual.

2. *The Bismarck Archipelago*, a mountainous but fertile group of islands lying east of New Guinea and subject to Germany.

3. *The Solomon Islands*, a group of volcanic islands lying about 500 miles east of New Guinea, with magnificent forests of ebony, sandal-wood, etc. The principal exports are cocoanuts, sandal-wood, and tortoise-shell. The group belongs partly to Great Britain and partly to Germany.

4. *The New Hebrides*, a group of small, volcanic islands surrounded by coral reefs, under the joint protection of the British and French.

5. *New Caledonia*, lying about 800 miles east of Australia, is the most southerly of the Melanesian group. It is very mountainous. The island belongs to France and is used as a penal settlement.

6. *The Loyalty Islands*, a chain of small islands about 70 miles east of New Caledonia. They are of coral formation and belong to France.

7. *The Fiji Islands*, a British Crown colony lying about 1,100 miles nearly north of New Zealand. The climate is delightful and salubrious. They are all of volcanic origin, and the soil is very fertile. They are one mass of tropical vegetation. The forests consist of trees of sandal-wood, ebony, lignum-vitæ, etc. Sugar, coffee, tea, tapioca, and cotton are cultivated.

II. MICRONESIA (small islands), the small islands of the Western Pacific, lying north of the equator and extending in a vast curve from the Philippine Islands to the Fijis. The following are the principal groups :—

1. *The Ladrones*, a group of volcanic islands belonging to Germany, except Guam, the largest, which belongs to the United States. They lie about 1,250 miles east of the Philippines.

2. *The Bonin Islands*, a group of volcanic formation, lying about 650 miles south-east of Japan, have been annexed by Japan.

3. *The Caroline Islands*, a series of small lagoon-shaped coral reefs, stretching for 2,000 miles over a belt of the Pacific, belong to Germany, having been purchased from Spain in 1899.

4. *The Marshall Islands*, of coral growth, belong to Germany.

5. *The Gilbert Islands*, a group of British islands, are all small. They are all coral reefs or atolls. The chief crop is cocoanuts.

III. POLYNESIA PROPER, embracing all the remaining islands of the Eastern Pacific, east of 180°, and between 30° north and 30° south latitude. These islands are all small, are all oceanic islands (see page 25), and hence are either of coral or of volcanic formation, or of both. The important groups of this subdivision are the following :—

1. *The Friendly or Tonga Islands*, a group lying about 400 miles south-east of the Fijis. These are a protectorate of Great Britain. They are mostly of coral formation, but there are some of volcanic formation. The soil is fertile. Cotton, fruits, and wool are produced and exported.

2. *The Samoa or Navigator's Islands*, a group of volcanic islands lying 600 miles north-east of the Fijis, are divided between Germany and the United States. They grow cocoanuts for exportation.

3. *The Society Islands*, a group of volcanic islands belonging to France, lying 2,000 miles directly east of the Fijis. *Tahiti* is the largest of the group. The central volcanic cone rises nearly 8,000 feet. The soil is fertile, and there are sugar, cotton, and coffee plantations.

4. *The Low Archipelago*, consisting of a large number of atolls lying east and south-east of the Society Islands, belongs to France. There are remarkably rich pearl fisheries. The mother-of-pearl is chiefly exported to Britain.

5. *The Marquesas* are all of volcanic origin, have no coral reefs, lie north of the Low Archipelago, and belong to France.

6. *The Ellice Islands*, a group belonging to Britain, and lying about 700 miles nearly due north of the Fijis, are all of coral formation.

7. *The Cook Islands* about 1,000 miles due east of the Friendly Islands. They are partly volcanic and partly coralline, and are all encircled by coral reefs. They belong to Britain.

8. *The Sandwich Islands* are of volcanic origin, and are of importance owing to the fact that they are on the high road of commerce between America and Australia. The soil is fertile and very productive. Sugar and rice are the leading exports. Honolulu is the chief city. These islands constitute the Territory of Hawaii of the United States.